HABITAT ASSESSMENTS BY WATERSHED

NOOKSACK RIVER BASIN – WRIA 1

Photo: Steve Seymour, WDFW

PROFILE: The Nooksack watershed and adjacent coastal streams and marine nearshore areas are located in northwestern Washington, encompassing most of northern and western Whatcom County, part of Skagit County, and reaching northward into British Columbia. The Nooksack watershed is large, covering over 830 square miles and has more than 1,400 stream and river miles, with elevations ranging from sea level to the summit of Mt. Baker at 10,778 feet. The Nooksack's headwaters originate within National Park and National Forest boundaries, with Mt. Shuksan, the most photographed peak in the United States, jutting out from North Cascades National Park. Surrounding the Nooksack watershed are the smaller watersheds that drain directly into Puget Sound from Dakota Creek near the Canadian border south to Colony Creek in Skagit County. To the northeast of the Nooksack watershed are portions of the Chilliwack and Sumas Rivers in the U.S., which drain to the Fraser River. Mount Baker, Mount Shuksan and the Twin Sisters Mountain characterize the upper reaches of the Nooksack River's three forks: the North, Middle, and South. All three forks are fed by run-off from rainfall and snowmelt, groundwater, and, in the case of the North and Middle forks, glacial melt. Downstream the forks widen to broad valleys with the Nooksack forming an estuary in the northwest corner of Bellingham Bay.

While most of the uppermost watershed is in Federal ownership, the middle portion of the watershed is in privately owned commercial forest lands, small landowner forestry lands, or State lands managed by the Washington Department of Natural Resources. Further downriver, the valleys transition to farms, including in the lower South Fork, with largely agricultural uses of the floodplain downstream of Deming. The flat lowlands down-river from the forks are more intensely developed with farms, roads, homes and businesses. Ultimately, the river drains to Bellingham Bay across a delta that is virtually unmanaged, recovering habitat diversity, and one of the higher quality estuaries in Puget Sound. The nearshore areas are rich in marine habitat and wildlife, including Drayton Harbor and Birch, Lummi, Portage, Chuckanut and northern Samish Bays. The original people of the watershed, the Lummi and Nooksack Tribes, developed cultures in an environment rich with fish and wildlife that they managed for thousands of years. The Lummi Nation living on the marine shoreline utilized these resources and today is the largest fishing tribe in Puget Sound.

Today, land designations in Whatcom County are follows: 36% federal forest lands, 9.5% state forest lands, 30% private forests, 11%, agriculture, 10% rural and 3% urban. Of the 8% of land designations in WRIA 1 that fall outside the County, 5% of the lands are rural residential (Canada) and 3% are forested (Canada and Skagit County). Population in WRIA 1 is projected to grow by 2022 to 261,084, an increase of 50.5 percent.

Major Industries: The largest industries are: government (including the 4 largest employers: Western Washington University, St. Joseph Hospital and the Bellingham School District and City of Bellingham), manufacturing, commercial and industrial development (including two refineries and an aluminum smelter), residential and social services, medical services, agriculture, and recreation. From a personal income perspective, the economy in Whatcom County is primarily linked to the following sectors: service, 25%, manufacturing, 16%, and government, 15%. From an employment perspective the economy is dominated by the service and retail sectors which account for 27% and 19% of the County's jobs, as well as the government and manufacturing sectors, 12% and 11% respectively.

Important Groups: The WRIA 1 Salmon Recovery Board is the lead entity responsible for implementing the local Recovery Plan and supporting salmon habitat project development and prioritization pursuant to RCW 77.85.050. The WRIA 1 Board was established in October 2004 by Interlocal Agreement and includes local governments- Executive of Whatcom County and the Mayors of Bellingham, Blaine, Ferndale, Lynden, Everson, Nooksack, and Sumas- and the salmon co-managers Lummi Nation, Nooksack Tribe, and Washington Department of Fish and Wildlife. The WRIA 1 Management Team was established by the WRIA 1 Salmon Recovery Board and the

WRIA 1 Watershed Joint Board (ESHB 2514) in July 2009 as part of a local effort to integrate salmon recovery and watershed planning. The WRIA 1 Management Team oversees the administration of activities associated with implementing the *WRIA 1 Salmonid Recovery Plan* and other tasks relevant to lead entity responsibilities in addition to overseeing implementation of the *WRIA 1 Watershed Management Plan* and related watershed planning activities. Staff Teams and Work Groups are task oriented and implement activities and programs under the direction of the WRIA 1 Management Team and the WRIA 1 Boards. Other organizations that are not represented on the WRIA 1 Salmon Recovery Board that are involved in the process of implementing the plan include Whatcom Land Trust, Nooksack Salmon Enhancement Association (NSEA), Whatcom Conservation District, WDNR, and the Flood Control Zone District Advisory Committee. Among the organizations that are not directly involved in the process but that are important to implementation are Port of Bellingham, US Forest Service, National Park Service, Bertrand Watershed Improvement District, and North Lynden Watershed Improvement District.

Limiting Factors: The North/Middle Fork and South Fork spring Chinook populations are at extreme high risk due to their low numbers and the low productivity of freshwater habitat. Estimates of historic Chinook abundances are an average of 26,000 and 13,000 respectively for the North Fork and the South Fork populations. Now, natural-origin Chinook return in the low hundreds, averaging 170 (North/Middle Fork) and approximately 80 (South Fork) fish in recent years. There are seven significant habitat factors limiting the Chinook: Instability of channel in the upper and middle portions the Forks; Increased sediment coming from natural and human causes, and changes in how that sediment is transported through the system; Loss of logs and other structures in the Forks and their tributaries that create pools and rearing places for the fish; Bank armoring mostly in the South Fork and mainstem that constrain the river and eliminate side channels where fish rear and could seek refuge during floods; Obstructions that block fish from key habitats; Changes in the river flow and temperature. The temperature and low summer/fall flows in the South Fork are viewed as a significant challenge to the long term survival of that population; and Changes along marine shorelines in Bellingham Bay and in nearshore areas have affected Nooksack and other Puget Sound populations that use these waters.

Implementation Assessment - Summary of Key Findings

A. The WRIA 1 Recovery Plan. The Nooksack Watershed recovery strategy emphasizes projects that address the root causes, rather than symptoms, of watershed degradation by focusing on disruptions to habitat-forming processes (i.e., the natural rates of delivery of water, sediment, heat, organic materials, nutrients, and other dissolved materials; NMFS 1996). Implicit in the process-oriented approach is the move away from managing for static habitat conditions, instead restoring natural ranges of temporal and spatial variability in habitat conditions. However, where population abundances are critically low (e.g., Nooksack early chinook populations), process-based restoration are balanced with interim measures that have more immediate benefit. In creating its Recovery Plan, WRIA 1 established 8 priorities for actions in the ten-year time frame:[1]

Habitat Near-Term Actions:
(1) Restoring fish passage at early chinook barriers (the Middle Fork diversion dam and Canyon Creek);
(2) Restoring habitat in the North and South Forks, Mainstem, and Early Chinook Tributaries;
(3) Integrating salmon recovery with flood hazard management;
(4) Updating critical areas ordinances and shoreline master programs to provide habitat protection through regulation and planning;
(5) Implementing Instream Flow Rules;
(6) Developing a nearshore and estuary restoration plan, including outreach and education and restoration projects; and
(7) In Lowland and Independent streams, removing fish passage barriers, managing stormwater to minimize negative effects and implementing farm plans.

Hatchery Near-Term Action:
(1) Implementation of a captive broodstock program to supplement the South Fork Population.

[1] See Appendix B, WRIA 1 Near Term Actions, WRIA 1 Recovery Plan; *cf.*, Executive Summary, Table 3, WRIA 1 Recovery Plan

B. Progress in Implementation. Since the creation of the Plan, the watershed has been working to implement habitat-related projects and programs within its 8 priority areas. Implementation of the Recovery Plan is jointly led by the Lummi Tribe, Nooksack Tribe and Whatcom County as co-leads. Over the years, the SRFB has provided $8.6 million in funding for 35 projects in WRIA 1. According to the current 3-Year Work Program, WRIA 1 is seeking to implement the following actions:

- 59 capital projects (which includes projects in some level of design, feasibility, and/or queued for construction). They also have four additional projects that are in the conceptual stage. The total estimated cost of the capital projects in process is $47,245,107 (however, many of the projects shown on the 3-Year Work Program do not include a cost estimate, so this figure is considered to be low). At present, only $14,085,164 is available, which represents a known funding gap of $33,159,943.[2,3] WRIA 1 has completed 31 habitat capital restoration and non-capital projects since 2002.[4]

- 22 non-capital programs, (which includes items such as habitat protection through regulation or incentives, outreach and education, plan administration and coordination, basic capital project development, monitoring, scientific research or assessments, and adaptive management). The total estimated cost of these non-capital programs is estimated to be $1.1 million (excluding hatchery programs0. It is unclear how much funding is available at this time.

Current activities and accomplishments within each of the 8 action areas can be summarized as follows:

Action 1. In terms of fish passage, the Lower Canyon Creek project was constructed and is now continuing into Phase 2, which consists of a series of projects that restore habitat-forming processes in the lower mile of the river. The project has $1.2 million in funding, which represents the amount estimated in the Plan, but final engineering designs for each project phase will further refine the budget needed for completion. The other project being advanced under this category is the Middle Fork Diversion Dam, which is at the feasibility stage. The project is expected to cost between $15 million to $20 million, but no existing funds exist to advance the project to construction at this point.

Action 2. As to restoration of early Chinook habitat, WRIA 1 has developed over 47 new restoration projects for the North and South Forks, Mainstem, and Early Chinook Tributaries. Currently, 24 of 47 projects are in the conceptual, scoping or early feasibility stages and 11 projects (23%) have funding identified to complete the project. WRIA is working to sequence and prioritize all of its action items for future updates of their 3-year work program. Significant amounts of additional funding are needed to complete all of the projects identified in the 3-year work program.

Action 3. Actions to integrate salmon recovery with flood hazard management are moving according to 3 sequenced steps: (1) establishing ongoing technical coordination between WRIA 1 and local governments, co-managers and others; (2) conducting technical assessments over the first 5 years of the plan to refine habitat restoration priorities, coordinating these projects with updates to the flood hazard reduction program; and (3) explicitly integrating salmon recovery needs into floodplain management, beginning to implement priority projects in years 3 to 5. To implement this strategy, WRIA 1 identified six actions that should be taken. However, in 2008 WRIA 1 determined that they will take a slower approach to implementing this Action item because they are seeking to avoid alienating the public and landowners.[5] In 2010, they are proposing six actions that will continue advancing their goals under this Action item, which includes responding to the FEMA Biological Opinion on floodplain development.[6]

Action 4. As to near term efforts to implement critical areas ordinances (CAO) and shoreline master program (SMP) updates, WRIA 1 staff participated in two key regulatory updates (by participating on the Whatcom County Technical Advisory Committee and the City of Bellingham's update), providing information to ensure that salmon habitat is protected to the maximum extent possible. Both of those jurisdictions have now completed their regulatory processes and are implementing newly

[2] The 2010 application process has just been completed. 7 proposals and 1 alternate project were identified for funding. The budgets for these projects are part of the Funding Gap.
[3] The Funding Gap includes a budget estimate for the Middle Fork fish passage project, which is a significant component of the funding gap. Using historic estimates the cost to implement the Middle Fork fish passage is estimated at $25,000,000, which is about 77% of the funding gap.
[4] Basis for information is SRFB funded projects for salmon recovery.
[5] 2008 3-Year Work Program Narrative at p. 4.
[6] 2010-2012 WRIA 3-Year Work Program Narrative at p. 6.

updated CAOs and SMPs. Small cities within WRIA 1 are still in the process of updating their CAO and SMP regulations. WRIA 1 notes that their work is done through a collaborative process that assumes that their government partners with jurisdiction over regulations are doing their part to provide adequate protection for habitat through regulation and enforcement. However, there are still regulatory gaps (e.g., exemptions for certain land use activities such as construction of single family residences and agriculture) that need to be addressed.[7] It should also be noted that Whatcom County is working toward a comprehensive low impact development program, and is currently working with DOE and others toward a watershed-based land use management program for Birch Bay (a key strategy for ecosystem recovery described in the Puget Sound Partnership's Action Agenda). These activities may support the protection of habitat-forming processes using policies and regulations as tools.

There is some mention of creating incentives for landowner participation in the Plan, and the Plan states a preference for habitat acquisition over regulation to achieve protection over the long-term. However, the 3-year work program does not include programmatic items to create or implement incentive tools for landowners, and there are few planned acquisitions on the near-term project list.

Action 5. The 3-year work program identifies completion of the instream flow negotiations in forks of the Nooksack River as a near-term priority. (It should also be noted that the NOAA Supplement to the Recovery Plan identifies the creation of strategies to manage and protect water quantity and instream flows is an ESU-wide issue). For implementation of its near-term actions relating to instream flows, key stakeholders have completed the WRIA 1 Watershed Management Plan under the 2514 watershed planning process. Water quantity, water quality and instream flows are the major focus of that effort, with fish habitat restoration efforts being coordinated very carefully with the salmon Recovery Plan development group. To accomplish this, the watershed has consolidated the policy boards of two programs and established a WRIA 1 Management Team that oversees administration of activities under both programs.

Action 6. The Recovery Plan calls for the creation of a nearshore/estuary restoration plan, including outreach and education and restoration projects. WRIA 1 has included 16 action items under the nearshore/estuary category of its current 3-year work program, one of which is the completion of the nearshore/estuary restoration plan. However, the work is not a 2010 priority item. The majority of actions under this portion of the Plan are restoration projects, for which significant additional funding is needed.

Action 7. In lowland and tributaries streams the Recovery Plan calls for removal of fish passage barriers, managing stormwater to minimize negative effects and implementing farm plans. It appears that current activities are focusing on implementing the fish passage barrier removal program, and stormwater program implementation by watershed local government partners. Working to implement farm plans is not found on the current 3-year work program, so it is not clear whether this work is advancing.

Action 8. The watershed is engaged in two hatchery-based supplementation programs to improve abundance:

- As to the South Fork Supplementation Program, smolt releases from the South Fork recovery program are expected to begin in 2011, and increase rapidly over the next several years. Annual releases are expected to reach several hundred thousand Chinook sub-yearlings over the duration of this Plan. Consequently, adult return abundance is anticipated to increase appreciably over the next decade. According to the Washington State Department of Fish and Wildlife (WDFW) , between 1999 and 2008 the estimated escapement of natural origin chinook returning to the south fork ranged from a low of 19 adult spawners to a high of 159 fish. Estimates of native South Fork abundance have appreciable uncertainty, and for a number of reasons may be biased low. There have been no adjustments in the estimates to account for years when flow conditions do not allow complete surveys, or for when suspended sediment reduces visibility and impedes identification of redds. Additionally, a low percentage of carcasses are sampled, particularly in the upper watershed where the proportion of South Fork native spawners is higher. Genetic analysis of juveniles collected for broodstock indicates significantly higher parental abundance than indicated by the conventional escapement estimates for 2007 and 2008.[8]

[7] Interview with WRIA 1 staff, August 2010.
[8] Per Steve Seymour, Washington State Department of Fish and Wildlife (WDFW).

- As to the North/Middle Fork population, a recovery program has operated at the Kendall Creek Hatchery since 1981. At peak production, up to 2.3 million fingerlings, 142,500 unfed fry and 348,000 yearlings were released annually into the North Fork, or at various acclimation sites. Beginning in 1991 all release strategies in the North/Middle Fork supplementation program were made identifiable by unique otolith marks to enable assessment of survival and straying. In 1998 production levels were reduced to avoid exceeding rearing habitat capacity and to reduce straying into the south fork. On-station releases, which exhibited the highest stray rate, were reduced by half (from 900,000 424,000); and in 2003, were further reduced to the current production level of 150,000. Since 2001, the abundance of natural-origin spawners in the North/Middle Fork population has varied between 210 and 334 adult spawners and the data suggest a gradually increasing trend (i.e. the 2004-08 geometric mean exceeds the 1999-2003 geometric mean) likely attributable to the Kendall Creek Hatchery recovery program.[9]

Finally, WRIA 1 is planning to engage in local and regional adaptive management and monitoring plan design, which is a gap identified by the NMFS Supplement to the Recovery Plan.

Overall, WRIA 1 is a voluntary recovery organization that has been steadily working to implement actions tied to their strategies in all major action areas. They are on track in terms of the work they are performing under the Recovery Plan. However, they self-report that they **are behind the expected pace of implementation** based on two factors: (1) the fact that at the time the Plan was written, key actions were not known and more reach-level assessments needed to be performed before they could identify and develop project actions; and (2) WRIA 1 has faced significant funding shortages, which limits the pace of implementation.[10]

What do they need to get back on pace? The short answer is more funding and staff to implement their projects and programs. The watershed is in critical need of funding for project a variety of actions:

- To carry out project implementation and land acquisitions
- To expedite the development and design of additional restoration projects under the Plan
- To continue participating effectively in 2415 water quantity planning processes;
- To track and participate in the land use regulatory updates related to habitat protection that are currently underway;
- To perform outreach to citizens and stakeholder groups, and to implement education programs
- To create an adaptive management program for their watershed
- To increase monitoring of fish populations and habitat status and trend
- To respond to the increasing need to participate in recovery work (both salmon and ecosystem) across the Sound

In addition, WRIA 1 is in critical need of funding to maintain their existing staff levels. This is also a critical need within their partner organizations (e.g., Whatcom County, WDFW), that are working with WRIA 1 to implement the Recovery Plan. Without funding for staff, the progress that has been made in implementing the Recovery Plan may be lost.

[9] Id.
[10] See, 2009 WRIA 1 3-Year Work Program Narrative Summary; 2010 WRIA 1 3-Year Work Program Narrative Summary

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: NOOKSACK RIVER WATERSHED

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
ACTION #1 **RESTORE FISH PASSAGE AT EARLY BARRIERS** **(Middle Fork and Canyon Creek)**	Middle Fork diversion dam (restore passage) RM 7.2	Bellingham Nooksack Tribe WDFW Lummi Nation	Yes	Yes	$5M-$6m	1		Determining feasibility. Does not appear to have funding yet.
	Middle Fork Diversion Dam (chinook release)	Nooksack Tribe WDFW Lummi Nation	Not yet	No	(Pending)	0	No	Determining feasibility. See Black and Veetch Phase I Final Report for cost estimates.
	Middle Fork Diversion Dam (alternative Kokanee program)	WDFW	Yes	Yes	$6.128m	1	No	Currently operating as planned. See, Kendall Hatchery item.
	Middle Fork Diversion Dam (Spawning ground survey)	Nooksack Tribe WDFW Lummi Nation	Yes	Not yet	$750k	0	No	This project will await completion of fish passage work. WDFW is shifting Kokanee production to other fish health zones where releases will occur. Per staff, the description of the Rx is now outdated.
	Canyon Creek Lower Canyon Creek Phase 2 Restoration (north fork) RM .03	Whatcom County Whatcom Land Trust, Nooksack Tribe WDFW Lummi Nation	Yes	Yes	$1.3 m	1	No	Project in Phase 2 alternative analysis. Current cost $240,500. Total project cost $1.371M
ACTION #2 **RESTORE HABITAT IN THE FORKS, MAINSTEM AND MAJOR EARLY CHINOOK TRIBUTARIES**								
	P-Complete Technical Analysis of watershed conditions and processes for SF Nooksack Acme-Confluence (RM 0-8) and Upper SF Saxon (RM 13-31).	Nooksack Tribe, Lummi Nation, Whatcom County, DFW,USFS	Yes	Yes	500k?	1?	No	
	P - Restoration Planning: conduct reach-level assessment to describe current conditions and desire future conditions	Nooksack Tribe, Lummi Nation, Whatcom County, DFW, Cities	Yes	Yes	$1.4 m	0	No	

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
	P-Public outreach	Nooksack Tribe, Lummi Nation, Whatcom County, WDFW, Cities, WCD,NSEA	Yes	Yes	no	0	No	
	C-Land Acquisition (See sites below)		Yes	Yes	$2 m	10 sites	No	Need willing land owners funding policy and community support to develop this tool
	Marietta – Purchase 8 parcels in flood-prone areas; Elevate Slater Road; Remove levees; Reconnect 600 acres of tidally-influenced floodplain.	Whatcom County PW	Yes	Yes	$800k	8 or more sites	No	Funding source not shown
	1-SF Reach Acquisition	Whatcom Land Trust	Yes	Yes	$951k	1	No	Funding source not shown
	1-Acme Confluence	(Unknown)	Yes	Yes	$1.125m	1	No	Proposed for 2011; funding source not shown.
	C-Restoration Project implementation: *47 capital restoration projects are found on the 3-year work program.*	Varies by project	Yes	Yes	$59.7 m to $64.2 m	50	No	Lack of funding for staff and projects
	P-Implement Agriculture incentive programs(CREP)	Whatcom Conservation District	No	No	TBD	0	No	Need willing land owner, improve consistent funding, tool to increase CREP easement past fifteen years. The WCD is providing ongoing technical assistance for farm plans.
	P-Forest Land Management Monitoring	DNR Lummi Nation Nooksack Tribe DOE, CMER, FFR	No	No	Unknown	0	No	Not on the 3 year work program. Need funding of tribal FFR programs and continued funding of state programs. Need USFS involvement and coordinated monitoring effort between feds states, local agencies.
ACTION #3	6 Strategies (described	Whatcom County,	Yes	Yes	Varies: Ranges	10	No	10 projects underway now

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
Integrate Salmon Recovery and Flood Hazard Management	below):	Lummi Nation, Nooksack Tribe, DFW, NOAA, USFWS, ACOE, Cities, NSEA,			250k-30m but several are TBD			including SF strategic plan. Funding appears to be single largest obstacle to implement this suite of actions ; Need continued CREP, also need engagement of federal agencies, USACOE, FEMA and small cities
	CoordiNation using TAC with County on projects and flood hazard reduction plans	Whatcom County, cities, Lummi Nation, Nooksack Tribe, WDFW, NOAA, USFWS, Corps	No	No	$750K	0?	No	Not on 3 year work program as specific action. Is the lead entity doing this?
	Use BAS to establish CMZs in SMP updates, salmon recovery and flood planning.	Whatcom County, cities, Lummi Nation, Nooksack Tribe	No	No	$250K	0	No	Not on the 3 year work program. Unclear as to whether this is being pursued by the watershed. TAC staff did work with County on its SMP and CAO. Other cities are still updating.
	Complete Hydraulic Modeling of Nooksack river – all reaches	Whatcom County	No	No	Unknown	1	No	Project is not on 3-year list, but is in progress. It is limited by lack of funding, staff time.
	Public Outreach – Engage public in developing watershed vision, landowner and city agreements as necessary.	Whatcom County, Lummi Nation, Nooksack Tribe, WDFW, NSEA	Yes	Yes	Salmon Summit= $20K Website =$25K Other- TBD	3	No	2 of 3 projects underway. 3rd is multi-level outreach strategy is being developed.
	Capital Projects Identify, design and construct major capital infrastructure projects – work with landowners in long-term habitat restoration options, where flood control infrastructure limits River reaches.	Whatcom County, Lummi Nation, Nooksack Tribe, WDFW,	Yes	Yes	$20-30M est.	Various projects – See above	No	Given how general this strategy is, it is difficult to tell which of the 47 capital projects on the list would meet this strategy.
	Restore Riparian Function of flood control structures.	Whatcom County, Lummi Nation,	Yes	Yes	Unknown	Varies	No	Difficult to tell which of the 47 capital projects on the 3-Year

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
		Nooksack Tribe, WDFW, NSEA						Work Program list would meet this strategy.
	a. Implementation of pilot levee setback projects with mutual benefit for flood management and salmon recovery; Lessons learned will be applied to future projects. *Priority 1B.*	None identified	Yes	Yes	Unknown	1	No	Salmon Recovery Board members have agreed that integration should be pursued deliberately but carefully to build community vesting and to avoid polarizing stakeholders and landowners. As such, they are only proposing to do the 3 strategies (a) through (c) here.
	b. Implement measures to ensure flood and transportation projects maximize benefit to salmon to the extent possible. *Priority 1B.*	None identified	Yes	Yes	Unknown	1	No	Unable to evaluate.
	c. Mainstem Nooksack Reach Assessment. As part of this project, salmon recovery staff will work with County River and Flood staff to evaluate project feasibility and conduct education and outreach of affected landowners and stakeholders. *Priority 1A.*	None identified	Yes -1A	Yes	Unknown	1	No	Unable to evaluate.
ACTION #4 Protect Habitat through Regulations: Critical Areas Ordinances and Shoreline Master Programs	4 Strategies to improve habitat protection: -Identify PFC Targets, -Coordinate TAG for update input; -Perform public outreach; and -Integrate Plan goals into	Whatcom County Cities of Bellingham Ferndale, Lynden, Everson, Nooksack, Blaine, Sumas	Yes	Yes	Smaller cities need funding	?	No	Whatcom County and Bellingham Critical Areas Regulations (CAOs) were adopted in 2005/2006. Financial support for small cities and public outreach is needed to help them complete this work. Unclear as to

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
	regulations							whether WRIA 1 is participating in small city regulatory updates.
ACTIONS #5 **Develop and Implement Instream Flow Management Regimes**	~~2 Strategies:~~ ~~1. Develop Instream flows in pilot watersheds (Bertrand creek and Middle Fork);~~ ~~2. Develop flow Recommendation in remaining drainages.~~ First, Evaluate flows in three forks, recommend flows. Next, advance the lower Nooksack watershed process for setting ISFs.	In-Stream Flow (ISF) Working Group	Yes	Yes	Varies – est. $200k to $500k annually	Various	Yes	This is an on-going process and WRIA 1 is actively engaged in it. This Strategy has changed based on the Confidentiality Agreement. Need funding ISF negotiation process; Amounts vary depending on technical, legal needs or need for mediation or other processes.
ACTION #6 **Develop a Nearshore and Estuary Restoration Plan**	3 Strategies P- Develop restoration plan; P- Public education and outreach, C- Implement restoration projects	Lummi Nation Nooksack Tribe WDFW Whatcom County Cities, DOE, MRC, NRT members	Yes	Yes	Need $50k to $5 m+	Various	No	Funding estimate varies widely.
ACTION #7 **Remove Fish Passage Barriers in Lowlands & Independent streams**	3 Strategies: C- remove barriers to fish passage, R- Manage Stormwater; and Implement farm plans.	Whatcom County, cities, WSDOT,WDFW, NSEA,WCD, Shellfish protection districts	Yes	In part	Partial EST 1.5-7.5M plus	Can't evaluate	Yes	Available funding will determine rate of project implementation; Stormwater action item requires funding for NPDES permit implementation. It was unclear from the 3-Year Work Program whether stormwater programs are being undertaken – not shown on the list. Farm plan implementation is shown but no cost estimates are included.
Hatcheries: **ACTION #1** **Create a South Fork Broodstock**	3 Actions:							
	P- Improve stock identification through baseline DNA analyses	WDFW	Unknown	Yes	Not stated	1	No	
	C- Hatchery modifications	Lummi Nation Nooksack Tribe	Unknown	Yes	Not stated	1	No	

Chinook Salmon Recovery Plan Element WRIA 1 NOOKSACK RIVER	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized?	Part of 3-Year Work Program	Cost Estimate	# of Projects in Progress	Fills Gap from NOAA Suppl?	Comments:
Program	P- Reduce NF early chinook & hatchery strays into SF; Determine genetic benefit/risks of culturing SF chinook; Develop HGMP, capture broodstock, spawn, incubate, rear, acclimate progeny.	WDFW Lummi Nation Nooksack Tribe	Yes	Yes	Not stated	1	No	Project is underway and will be continuing. See Assessment Summary narrative for further description.

SAN JUAN ISLAND BASIN – WRIA 2

PROFILE: The San Juan Islands currently contribute a high degree of functioning habitat to the twenty-two salmon populations in Puget Sound, primarily through the largely intact nearshore areas. Located in northern Puget Sound, San Juan County is an archipelago consisting of four major islands (San Juan, Orcas, Lopez and Shaw) and more than 170 smaller islands). San Juan County has 175 square miles of land area and 408 lineal miles of marine shoreline, so a large percentage of the land area is in proximity to salt water. In the islands, then, the connection between what happens on the land and what happens on shorelines and in the nearshore is of particular importance. The Islands are located at the water cross-roads of the Strait of Juan de Fuca, the Strait of Georgia and Puget Sound. The areas waters are rich with nutrients and food for marine organisms. They are home to marine mammals, fish and other wildlife, including ESA-listed Orca whales. Land uses on the islands have consisted of farming and fishing in the past, but the area is becoming increasingly popular for tourism and recreation, and pressure has increased for more residential development.

Major Industries: Tourism, fishing, farming, commercial retail and residential services

Important Groups: Marine Resources Committee, San Juan County, Islands Oil Spill Association, Historical Societies, The Nature Conservancy, The San Juan Preservation Trust, Friends of the San Juans, Washington State Departments of Fish and Wildlife, Natural Resources, and Ecology, local Tribes (including the Nooksack, Lummi, Swinomish, Tulalip, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, and Samish Tribes), the National Park Service, the Skagit River System Cooperative and the Bureau of Land Management

Limiting factors: The San Juan Islands provide important habitat for the forage fish on which salmonids depend. Modifications of nearshore habitats and ecological processes by over-water structures shoreline armoring, resource exploitation, contamination and climate change have resulted in loss of habitat area and functions. The San Juan Islands have a large amount of functioning habitat remaining. However, the amount remaining likely differs by habitat type. The development that has occurred has disproportionately affected soft-shore habitats as opposed to rocky shorelines. Loss of eelgrass beds poses a significant threat to the productivity of some Chinook salmon life history stages.

Implementation Assessment - Summary of Key Findings

This watershed is mainly a nearshore contributor to recovery, as the San Juan Islands do not have Chinook salmon populations in their freshwater streams. The San Juan Islands approach to recovery is to improve protection of habitat functions and processes through better mapping and monitoring of existing features such as sediment, water quality, eel grass, tidal marshes, riparian areas and kelp beds. The plan assumes that the federal, state and local agencies with regulatory authority over land and shore uses will use this information to apply protection measures through permitting. Another major approach is to provide information to citizens tailored to the type of land they own and what they can do to support nearshore functioning conditions. At the time of adoption of the Plan, the TRT identified several additional steps that needed to be taken to increase the certainty of plan's desired outcomes. They included linking the plans strategies and actions to the expected results for fish VSP, so that once the ecosystem principles, stressors and geographic priorities are stated, they can be measured for monitoring purposes; creating an adaptive management strategy and completing the work to identify high priority habitat areas for protection.

In comparing the strategies and actions described in the Plan that were developed in 2004 with the Island's current 3-year work program, it appears that the San Juan Islands have advanced their strategies and have moved into the next phase of Plan implementation, having completed some of their early scientific assessments. They have prioritized their work in the following order:

(1) Complete Assessment Projects – Fill critical data gaps via assessments to enhance and support protection, and identify needs and opportunities for restoration;
(2) Perform Protection Projects – includes data sharing, stewardship, acquisition and easements, incentives and education; and
(3) Perform Restoration Projects – to be based on habitat condition assessments.

Today, there are currently 97 projects identified on their 3-Year Work Program. All but a handful of programmatic items are prioritized and funding estimates are shown. Of those 97 projects, 13 have been completed, and most projects are active and advancing in some fashion (in conceptual, design, feasibility or permitting stages, as applicable). The remaining projects on the 3-Year Work program include:

- 29 Capital restoration projects (including habitat restoration, acquisition and projects in design or queued for construction). The funding needed to perform the work is $31 million, but only about $1 million has been identified (for a gap of $30 million).

- 55 Non-capital programs (including programs such as project development, habitat protection actions, plan implementation and coordination, outreach and education, instream flows, monitoring, research and hatchery projects). The cost of performing all those programmatic actions is estimated to be $4.4 million, but the watershed has identified only about $900,000 to perform the work (a gap of $3.5 million).

Their current funding gap to implement all plan items today is approximately $33.5 million. This gap may be partially the result of timing – watersheds may not actively seek funding until projects reach a certain stage of development. However, the gap is significant in light of recent funding trends. WRIA 2 expects to receive only $300,000 in state funds toward the 2010 for projects on its list.

In terms of its efforts on habitat protection, it should be noted that WRIA 2 is one of the watersheds that is actively participating in habitat protection through the County's regulatory process. It has been actively engaged in supporting the County's efforts to update its critical areas ordinance and Shoreline Master Program, and implementing LID in stormwater control. In addition, the Lead Entity evaluated the effectiveness of its existing regulatory programs through a project known as the San Juan Initiative.

As noted by the RITT in its most recent review of their efforts, implementation of the San Juan Islands Recovery Plan has been hampered by inadequate funding, made worse by the recession, which has resulted in significant staffing and funding cuts at the federal, state and local government levels. The lead entity needs to update the Plan, develop and implement an adaptive management strategy, and continue to engage with the local community to sustain this effort. The Watershed has self-reported that their most significant challenges and highest needs include:

- Consistent funding for the local lead entity program is not available now that the County is no longer able to fund it. The program is at serious risk of closing operations after 2011 if additional operational monies are not found.
- Basic funding for County infrastructure (implementation of land use codes, permit program, enforcement and technical assistance to landowners) is needed. Without it, habitat protection will not occur through regulation, as there is little support for it.
- Adequate funding for State regulatory agencies (DFW, Ecology, DNR) is needed to ensure they can participate in recovery work in the San Juans and help to sustain local implementation of regulatory programs, survey work, monitoring and support for local jurisdictions.
- Guidance and support for monitoring programs. It is very difficult for WRIA 2 to fund assessment research projects and even tougher to gain support for funding for long-term monitoring programs.

WRIA 2 Lead Entity staff report that the structure of state grant funding requirements (e.g., the inability to use Salmon Recovery Funding Board (SRFB) grants as matching funds for PSAR funding, which is needed to gain federal PACSRF funds), remains a concern when local funds are severely restricted. Staff suggests that larger block grants be used to fund salmon recovery projects and programs. In terms of habitat protection, in the past, WRIA 2 staff was funded by the County, which made it difficult to advocate for regulatory protections that may have been stronger or took a different approach than the regulations proposed by County departments or elected officials.

Overall, WRIA 2 has been steadily working to implement actions tied to their strategies in all major action areas. They are just beginning their "Pulling-It-All-Together" ("PIAT") project, which is an effort to synthesize the scientific assessments they have performed with additional recovery planning work to move to the next phase of implementation. However, they are clearly **behind the expected pace of implementation** based on two factors: (1) the fact that at the time the Plan was written, key actions were not known in many areas, especially with regard to the nearshore areas, and assessments needed to be performed before they could identify and develop project actions; and (2) WRIA 2 has faced significant funding shortages which limits the pace of implementation. Their efforts on monitoring and adaptive management are also behind schedule.

What do they need to get back on pace?

The watershed is in critical need of funding for project and program implementation, additional staff capacity to continue project development, and to coordinate with WRIA participants. This is especially true for regulatory agencies charged with protecting the nearshore environments and landowners, whose participation in protection is vital to the success of their plan. There is an urgent need to ensure that the lead entity program continues to have funding past 2011, that the participating state agencies have funding for staff to participate in programs in WRIA 2, and to perform long-term habitat and fish population monitoring. WRIA 2 currently receives only $100,000 for program funding.

Additionally, as a geographically remote area, it is important that the region continue to provide support to WRIA 2. Specifically, they need better, consistent participation from federal and state agency staff to build trust with local citizens and to provide credible technical support for their recovery efforts. (As one example, staff noted that frequent turnover in PSP staff representation in the past three years has made it difficult for the Lead Entity to utilize their expertise with the public, as newcomers are not readily accepted by local citizens). The watershed also needs professional facilitation support to advance community conversations around regulatory protection of habitat. Finally, Lead Entity staff need funding that provides for travel to and from the San Juan Islands so that they can participate in cross-watershed work and with regional Puget Sound and Salmon recovery efforts.

Staffing Needs

WRIA 2 estimated that they need the following staff positions and/or skill sets to fully implement their local recovery planning efforts:

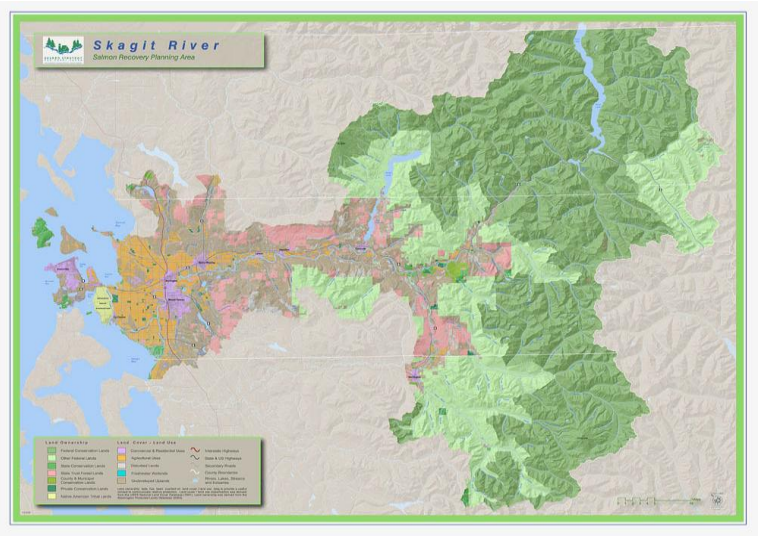
- 1 .0 FTE – Program Director
- 0.5 FTE – Clerical Support Staff
- 1.0 FTE – Outreach and Education Program Coordinator
- 1.0 FTE – Biologist (marine or habitat) to enhance protection and support project development
- 0.5 FTE – Technical Support (to continue purchasing time from WDFW for engineering technical assistance to develop habitat projects.
- 1.0 FTE – Funding Specialist and/or Grant Writer

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: SAN JUAN ISLAND WATERSHED

Chinook Salmon Recovery Plan Element SAN JUAN ISLANDS	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Number of Projects in Progress	Fills Gap from NOAA Suppl?	Comments
Assessment Strategies	P-Perform Data Collection: Eelgrass, Drift cells Bluffs, high energy beaches kelp beds sub-estuaries, freshwater marine riparian zones tidal marshes	Various	Yes	Yes	See project list	Several	No	WRIA 2 has completed 4 assessments and has at least 6 others underway or planned on the 3-year work program list. Funding is a significant hurdle.
	R- Incorporate BAS into shoreline and critical area updates	County, Cities FSJ, MRC, WRIA 2	Yes GMA mandate	Yes	No	2	No	The jurisdictions need additional funding to support these programs and handle enforcement over time.
	Oil Spills data collection	None	No	No	No	No	No	No one is Leading this Strategy; only focus on oil spills in the education strategy, which is in a conceptual stage; they do have contaminant monitoring proposed by KWIAHT at $100k cost, but no funds available.
	Overwater structures and shoreline armoring	Unknown	No	No	No	No	No	No one is Leading this Strategy
	Salmon use of near shore habitats RS-	KWIAHT	Yes	Yes	Yes 55k annual cost	1	No	This is underway.
	Water quality monitoring	KWIAHT	Yes	Yes	50k Ongoing	1	No	This Is underway.
	Fish utilization study for In-water work windows: 4 projects underway to determine fish utilization and update work windows	Wash. Water Trust; WDFW; Skagit River Coop; UW	Yes-1	Yes	Minimal funding for these studies is available	4	No	These projects are active and expected to be complete in 2012 if funding is available.
Protection Strategies								
Data Sharing	P- Update and distribute data on forage fish habitat to regulatory agencies	Friends of SJ	Yes-1	Yes	$100k	1	No	Project is active to gather the forage fish data and at the conceptual planning stage.
Marine stewardship	P- Use MSA as catalyst to coordinate groups to sharing information	MRC	Yes	Yes	$45k		No	This work is underway.
Acquisition	Identify key locations for	San Juan Preservation	Yes-1	Yes	No	5 of 8	No	There are 8 projects; 3 are

Chinook Salmon Recovery Plan Element SAN JUAN ISLANDS	Actions Described in the Recovery Plan that Implement the Key Strategies	Action Leader(s)	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Number of Projects in Progress	Fills Gap from NOAA Suppl?	Comments
	protection through acquisition through NGO	Trust SJ Land Bank Friends of SJ						complete; 3 are at feasibility stage ($19m- no funding); 2 are new and at conceptual stage)
Incentives for protection	Create new tax reduction category for nearshore habitat included in management plan R/P	San Juan Preservation Trust	Yes-1	Yes	$75,000	1	No	SJI-Improving Shoreline Incentives for protection; feasibility completed.
Other [NEW PROGRAMS]	-Regulations CAO/SMP -Outreach/Education -Collaboration and Implementation Coordination; -Scientific Research -Monitoring	WRIA 2 (Lead Entity staff)	Yes	Yes	$33,000 for staff; Need additional funds	?	No	None of these programs were part of the original plan set of strategies. There are several new actions on the 3-year work programs in this category. The WRIA is exceeding its Plan.
Subarea Strategies:								
Restoration in Streams Freshwater Estuary Habitat	2 projects to restore streams/lagoons at port Stanley on Lopez island, Deer harbor on and Orcas	Various; See project list	Yes-1 and 2	Yes	$31 million	29	No	Today, this strategy has been significantly updated. There are now 35 capital projects, with 29 remaining at est. to cost $31m; only $1m identified.
Stream restoration	3 projects: False Bay WRIA 2 Exp. Garrison Creek	Wild Fish Conservancy	Yes	Yes	$154,249 $150,000 $150,462	3	No	Not on the list.
Shoreline road restoration projects	P/C Blind bay, Shaw Island, Agate beach on Lopez island	Unknown	No	No	No	No	No	Not on the list
UGA and rural settlements	Apply LID & Marine, nearshore conserve. policies in GMA plans	San Juan County	Yes	No	Yes?	1	No	Whatcom County is pursuing this action.
Marine stewardship area phase 2	Develop a new planning tool to guide implementation of the MSA	MRC	Yes-I	Yes	Not yet	1 concept phase	No	MRC has developed a program to monitor habitat and water quality trends; it isn't really a "planning tool." But, new project for protection and restoration tool is on 3-Year Work Program.
Adaptive Management Strategy	Develop Salmon Recovery Adaptive Management and Monitoring Strategy	SJ County Lead Entity	Not ranked	Yes	$10,000 Need $350k	1	Yes	This is now underway with the RITT support. Fund sources include PSAR, LE, NEP

SKAGIT RIVER WATERSHEDS – WRIAS 3 & 4



PROFILE: At 3,100 square miles, the Skagit Watershed is the largest drainage that flows into Puget Sound. The Skagit River is the third largest river on the West Coast of the continental United States.[11] The Skagit River watershed consists of the Skagit, Sauk, Suiattle, Baker and Cascade Rivers. The upper portion of the watershed is primarily under control of the federal government, located within the Mount Baker-Snoqualmie National Forest and North Cascades National Park. The upper watershed consists of wilderness, wetlands, riparian and conifer forests, which provides important habitat for many species including grizzly bears, wolves, king fishers, and bald eagles. The lower watershed consists of highly productive farms and growing urban areas which are located within the estuarine and intertidal areas that also provide habitat for large concentrations of wintering waterfowl shorebirds, raptors, snow geese and an entire population of Trumpeter Swans and gray-bellied Brants. Important nearshore areas include the Skagit Delta, Skagit Bay, and Fir Island.

Major Industries: Skagit County's economy is regarded as one of the fastest growing areas in the state. Major industries include agriculture, fishing, wood products, tourism, international trade, and specialized manufacturing. With its accessible ports and refineries, Skagit County is also the center of the State's petroleum industry.

Important Groups: Government agencies from every level are important in the recovery of the Skagit River watersheds. They include: the U.S. Forest Service, National Park Service, Swinomish, Upper Skagit and Sauk-Suiattle Tribes, Washington State Departments of Natural Resources, Ecology, and Fish & Wildlife, and Skagit County, Cities of Sedro-Woolley, Anacortes, Burlington, La Conner, Mt. Vernon, and Concrete. In addition to government agencies, there are numerous interest groups, businesses and nonprofit organizations that play an important role in guiding recovery actions. They include among others, the following: the Skagit River System Cooperative, the Skagit Watershed Council, Wild Fish Conservancy, Western WA Agriculture Association, Fidalgo Fly Fishers, Long Live the Kings, Mount Baker-Snoqualmie National Forest, Skagit Audubon Society, Skagit Conservation District, Skagit Fisheries Enhancement Group, Skagit Land Trust, North Cascades Institute, Padilla Bay National Estuarine Research Reserve, People for Puget Sound, the Nature Conservancy, PUD District No. 1 of Skagit County, Puget Sound Energy, Seattle City Light, and the Puget Sound Anglers, Fidalgo Chapter.

Limiting factors: The limiting factors found to be important for recovery in the Skagit include: juvenile holding/rearing capacity; degraded riparian areas; illegal fishing or poaching; hydropower operations on the Baker River and Skagit Mainstem upstream of Newhalem; sedimentation and mass wasting due to timber harvesting; flooding due to hydrologic changes and loss of floodplain; high water temperatures caused by riparian tree removal and reductions in stream flow; hydromodifications caused by bank armoring to prevent erosion and channel migration; water withdrawals; loss of delta habitat due to diking, dredging and filling; loss of delta habitat connectivity; loss of pocket estuary habitat and pocket estuary habitat connectivity; the availability of prey fish species, illegal habitat destruction and degradation from urban, agricultural, and other non-point pollution entering directly into streams; bulldozers operating on spawning grounds; illegal and unpermitted development and land use practices along the Skagit River and its tributaries; wood removed from gravel bars; and low marine survival rates.

Implementation Assessment - Summary of Key Findings

[11] Puget Sound Salmon Recovery Plan, Shared Strategy for Puget Sound, June 2005 at p. 175.

The original recovery plan. The original Skagit Recovery Plan was not created through a consensus process that included all of the parties that must participate in recovery. As a result, the Plan's implementation is less coordinated and less certain than in other areas of the Sound. The original plan was a multi-species restoration strategy for the Skagit watershed, first created in 1998, but adapted to a Chinook salmon-focused plan with the creation of the Puget Sound Chinook Salmon Recovery Plan in 2005. In 2010, the Skagit Watershed Council (which only works on voluntary restoration actions) adopted an update to restoration actions in the Plan, which is designed to present a more strategic, focused Recovery Plan, tempered by recent experiences and their view of human constraints within the Skagit watershed that are not likely to change in the near-term. Salmon recovery in the Skagit River Watersheds is critically important to the successful recovery of the entire ESU. Although efforts are underway for all of the "4 H's"—habitat, harvest, hatcheries and hydropower, significant challenges still exist that threaten the success of the Plan.

The 2010 Strategic Approach. The 2010 update adopts three guiding principles for their implementation efforts: (1) Restore processes that form and sustain salmon habitats; (2) Protect functioning processes and habitats from degradation; and (3) Focus protection and restoration on the most biologically important areas. Here, this means the loss of delta and floodplain habitats in the lower Skagit River. Accordingly, they have identified target areas for restoration and protection actions according to priority:

- Tier 1 Target Areas – *Skagit estuary and riverine tidal delta target area, and large river floodplain;*
- Tier 2 Target Areas – *Nearshore pocket estuary target areas; and*
- Tier 3 Target Areas **–** *Sediment and hydrology impaired watersheds.*

The Strategic Approach sets priority objectives for recovery actions within each of the three target areas. Current efforts now appear to focus exclusively on these three priorities. It is not clear from the text whether other goals and objectives from the original plan are now being abandoned or will remain as a guide to future actions when the three priority areas are restored. In addition, a key statement in the new Strategic Approach relative to habitat protection provides:

> *Existing land use regulations are assumed to be sufficient regulatory baseline to support salmon across the watershed* as a whole. However, the future implementation and success of these regulations is somewhat uncertain and it may be prudent to attain higher levels of protection those places deemed most important for salmon recovery.

(*See*, 2010 Strategic Approach at p. 10). This statement seems to be at odds with the Original Recovery Plan strategies (in particular Strategies Nos. 24, 26, 27, 30, 32, 33, 34, 35, and 36), which call for changes to federal, state and local regulations to increase habitat protection. Further discussion about this statement is warranted. Additionally, the Lead Entity staff report that they have no monitoring programs that tell them about the status of habitat.

Similar to other watersheds, the adoption of the Skagit Watershed Council's 2010 Strategic Approach raises an issue as to how such a change will be evaluated by NMFS in terms of the assumptions it made in adopting the 2007 Puget Sound Chinook Salmon Recovery Plan, and what process should be used to undertake such evaluations as watersheds engage in adaptive management of their original plan goals and strategies.

Habitat Restoration Efforts: Implementation is underway on key work to restore and/or acquire habitat in Skagit. Capital projects are regularly being identified, prioritized and designed by the Skagit Watershed Council (SWC), although funding and staffing remains inadequate to meet the expected pace they had hoped to achieve in the first 10 years. The SWC focuses exclusively on voluntary restoration activities, where willing landowners desire to participate. In terms of their accomplishments on capital projects, Skagit has recently completed the Wiley Slough restoration project, one of the most important delta projects. They are also poised to complete the Fisher Slough tidal marsh restoration in the next three years. More progress has been made in acquisitions for habitat protection, with about 47 percent of their SRFB funds having gone toward acquisitions of functioning floodplain habitat. In addition, the Tidegate Fish Initiative was recently agreed to by NMFS, which will restore 2,700 acres of the Skagit delta in exchange for the maintenance of certain tidegates.

Habitat Protection and Other Non-capital Programs. Most of the significant habitat protection strategies listed in the original Recovery Plan are not being pursued by the SWC. Where actions by local governments (Skagit County, various cities) are being taken to protect habitat, they are largely driven by mandates of state or federal law

(e.g., FEMA's Flood Insurance Program requirements, the Clean Water Act, the Growth Management Act, and the Shoreline Management Act). Those actions are not generally focused on achieving the outcomes described in the Recovery Plan's Habitat Protection strategies. There is no clear leader (either an organization or individual) within the Skagit who is working to convene the disparate interests groups to work in a coordinated fashion on the Plan's habitat protection strategies. PSP staff believes that such an effort would not be productive at this time. There is no consensus on which habitat protection strategies should be the highest priorities. The local political climate can often pose an obstacle to local governments enacting stricter habitat protections through regulations. In the past such efforts have been met with opposition from farmers and property rights interests. This history of distrust and, in some cases, litigation between opposing groups, has made it difficult to advance even legally-mandated regulatory changes. Additionally, these issues are complicated by a lack of funding and staff to pursue these types of activities in a comprehensive manner.

Despite these significant challenges, some positive developments have occurred that should be recognized. In 2007, Skagit County adopted a resolution that set itself on a "decisive pathway toward salmon recovery," approving a new recovery strategy, known as the Salmon Policy Resolution (SPR). It requires all Skagit County departments to consider the needs of salmon in all of their actions. Although some members of the community are skeptical of these efforts, this is a significant shift politically and practically for the County which, in previous years, has opposed salmon recovery efforts. The County has also worked with DOE to settle the Skagit River Instream Flow Rule litigation. In addition, they are now in compliance with GMA with the adoption of its latest version of critical areas regulations. The County is also undertaking updates to two key regulations: the flood hazard regulations and its Shoreline Master Program which could provide better protection for Chinook salmon depending upon the content of those new ordinances and how they are implemented and enforced.

However, despite these recent signs of progress, the Skagit watersheds are not keeping pace with the goals of the Recovery Plan. In terms of their restoration projects, WRIA 3 and 4 receives the largest funding allocation in Puget Sound (15.5% of the PSAR funds), but the SWC reports that it is taking longer and costing more than projected to implement the projects in the Recovery Plan. Almost every project identified for implementation in the first five years of the plan was delayed and costs underestimated. Specifically, the 3-year work program identifies a total of:

- 38 Capital projects (mainly habitat restoration) with a total project cost estimated at $46.4 million. Nearly half of those capital projects (16 of 38) have no identified funding source, and 8 of the 16 projects have no defined budget as yet. Of the 22 projects that have defined budgets, the funding gap is $2.795 million. The Skagit PSAR allocation for the 2009-2011 biennium is $5.127 million.

- 0 Non-capital programs and projects (including project development for capital restoration projects, habitat protection programs, outreach and education, scientific studies and assessments, stock and habitat monitoring, hatchery projects, lead entity support) are shown on the current 3-Year Work Program. The 2008 3-Year Work Program showed 42 programs and projects with a total cost estimated at $24.435 million for this work. It is unclear at this time how many of these efforts are still in progress, whether they are funded and what the total unmet need is at this time.

What do they need to get back on pace?

Regional support to move habitat protection actions forward. The Skagit Watershed needs regional political and policy support on protection issues, which is difficult to address at the local level. Their organization is a "big tent" which includes stakeholders who may oppose recovery efforts, especially regulation. They have reached a point now where they need a sea-change in approach and community support to achieve restoration of the Skagit estuary. They need the region to provide a broader forum to discuss difficult issues. They need landowner concurrence to achieve restoration on a scale large enough to be consequential for recovery at the mouth of the Skagit River, but this is also prime agricultural land. Lead Entity staff believes that they may need an advocacy organization or the federal agencies to push for it because they aren't achieving it through the consensus model. In the past, the watershed has attempted to achieve multiple benefits from each project. However, they have no programmatic way to measure whether this holds the line in terms of habitat protection. A review of the existing regulatory protections and enforcement programs now in place in Skagit may also be needed, along with status and trends monitoring to ensure that habitat restoration gains are not being offset by continuing losses in other places in the Watershed.

Funding. The SWC needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, multi-interest projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts). They note that there may need to be a shift in state funding policies that provide grant funds to organizations that support efforts that are inconsistent with recovery goals. WRIA staff also notes that funding for monitoring is very difficult to gain and it may be time for NMFS or another agency to require monitoring to be included in projects of a certain size/scale.

Staff Capacity. The staff noted that they need capacity funds to work on moving the entire plan forward (not just the restoration pieces). They need funding to perform targeted outreach to citizens in areas where projects are needed. They will need additional technical support if they embark on more projects in Middle Skagit and will likely need additional staff support to perform adaptive management of the Plan.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs. Finally, we note that the adoption of the Skagit's new Strategic Approach may cause NOAA (or the RITT) to examine whether it changes any of the fundamental assumptions that it made in approving the original salmon Recovery Plan.

Adaptive Management Support. The SWC is waiting to use its WEP grant for adaptive management, but it needs the participation of the RITT, which has capacity limitations and hasn't been able to engage in this work yet.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: SKAGIT RIVER WATERSHEDS

Chinook Salmon Recovery Plan Element SKAGIT RIVER	Key Strategies; Type: R=Regulatory C=Capital I = Incentive RS=Research P=Planning	Responsible Lead or Agency with Jurisdiction	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Total # Projects In Progress	Filling Gaps called out in NOAA Suppl.	Comments
2010 UPDATE: HABITAT ELEMENTS								
1.1 Restore distributary channels connecting the N. Fork of the Skagit River to the Skagit Bayfront	2 Projects – Swinomish Channel Restoration and Swinomish Channel Fill Removal	Skagit Watershed Council	Yes – 1	Yes	1 of 2 Project cost unknown	1 of 2	No	Channel restoration project is complete. Restoring 50 acres. The fill removal project is underway. Project costs are not listed on the 3 year work program.
1.2 Restore connectivity between N. Fork and the Swinomish Channel/Padilla Bay by addressing barriers at McGlinn Island Causeway, jetties, levees and Hwy 20.	1 project: McGlinn Island Causeway	SWC	Yes -1	Yes	No. Project costs unknown. At 90% design.	1	No	Project is coded as "in-progress" but no project costs are shown or funding sources.
1.3 Restore estuarine emergent and scrub-shrub wetlands that are directly connected to the N. or S. Fork Skagit River or a major distributary channel.	Milltown Island, S.Fork off-channel, Fir Island Farm, Cottonwood Island and Deepwater Slough Phase 2.	SWC, DFW	Yes – 1	Yes	Partial Most project costs are not stated.	3 of 5	No	Project is coded as "in-progress" but no project costs are shown or funding sources. These are major projects for which budgets need to be identified if they are going to be advanced.
1.4 Restore functioning riverine tidal forested and scrub shrub wetland habitat through actions such as dike removal or setbacks	Fisher Slough Restoration	SWC	Yes -1	Yes	Yes; $2.8M	1	No	This project is fully funded and underway. It will restore 68 acres of estuary habitat.
1.5 Implement actions to improve water quality in impaired areas.	No projects on the 3 year work program list.	SWC	No	No	None	0	No	There are no projects on the lists. SWC does not appear to be advancing this strategy.
1.6 Protect existing high quality habitat and contribute to restoration	No projects on the 3 year work program list.	SWC	No	No	None	0	No	There are no projects on the lists. SWC does not appear to be advancing

Chinook Salmon Recovery Plan Element SKAGIT RIVER	Key Strategies; Type: R=Regulatory C=Capital I = Incentive RS=Research P=Planning	Responsible Lead or Agency with Jurisdiction	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Total # Projects In Progress	Filling Gaps called out in NOAA Suppl.	Comments
actions through acquisition or permanent conservation easements.								this strategy.
Reconnect isolated floodplain areas and restore mainstem edge habitat	9 projects on the list.	SRSC, SFEG, SWC	Yes – 1	Yes	Total cost $2.146M	6 of 9	No	6 projects are underway. 3 new projects are proposed which will require future funding in the amount of approx. $971K.
Acquire lands and easements to protect high priority habitat	4 projects on list.	Skagit County, SWC	Yes – 1	Yes	Yes Acquisition cost $3.522M	3 of 4	No	These purchases are largely funded and in progress. One new project has been added to the list without a budget.
2.1 Protect and restore natural landscape processes, connectivity, and habitat functions at the 12 pocket estuaries.	4 projects on 3 year work program: Lonetree Lagoon, Turner's Bay, Kiket Island, Similk Bay	SWC, TPL and SRSC	Yes – 2	Yes	2 of 4 are funded. $15.994M*	2 of 4	No	*One project has no projected cost yet. 2 of 4 projects are in progress that will restore 8.7 acres of nearshore area and protect 2+ miles of shoreline through acquisition.
2.2 Reconnect isolated floodplain areas; restore mainstem edge habitat by removing floodplain structures	4 projects on the list.	SFEG, USIT, SWC	Yes – 2	Yes	$4.438M Gap is $275K.	2 of 4	No	Most of these projects are funded and underway.
2.3 Acquire lands or conservation easements to permanently protect high priority parcels or facilitate restoration	No projects on the 3 year work program list.	Unknown	No	No	None	0	No	There are no projects on the lists. SWC does not appear to be advancing this strategy.
2.4 Restore natural riparian structure and processes by reforesting and adding LWD	2 projects. Day Creek and Lower Finney LWD projects	SFEG	Yes – 2	Yes	Yes Total project cost $262K	2 of 2	No	Projects are underway.
3.1 Reduce land use impacts on sediment supply and peak flows	No projects on the 3 year work program list.	Unknown	No	No	None	0	No	There are no projects on the lists. SWC does not appear to be advancing

Chinook Salmon Recovery Plan Element SKAGIT RIVER	Key Strategies; Type: R=Regulatory C=Capital I = Incentive RS=Research P=Planning	Responsible Lead or Agency with Jurisdiction	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Total # Projects In Progress	Filling Gaps called out in NOAA Suppl.	Comments
								this strategy.
3.2 Repair, relocate or remove roads, bridges, culverts or other structures that significantly increase erosion or peak flows.	6 projects on 3 year work program list	Unknown	Yes – 3	Yes	3 of 6 Total project costs $1.44M*	3 of 6	No	*One project (Illabot Creek Road) is in progress but has no budgets stated in the 3-Year Work Program. 3 other projects are funded. The funding gap is $650K.
ORIGINAL PLAN HABITAT ELEMENTS								
Instream Flows:								
Nos. 1-4,8, 12, 13 (R)	Water Rights, Instream Flow Rules	Dept. of Ecology	No	No	Unknown	Unknown	Yes	Instream flow rules have been subject to intense litigation. Many now be resolved.
No. 5 (R)	Building Permits	Local Govts.	N/A	No	Unknown	Unknown	No	Very little political support for new salmon-related regulations; but already required by state law.
No. 6 (R)	Municipal Water Rights	Skagit PUD and Anacortes Water Systems	No	No	Unknown	Unknown	Yes	This strategy may be affected by recent S.Ct. decision.
No. 7,11 (P)(R)	Coordinate Mitigation; create a water bank	Fed, State, Local Agencies	No	No	Unknown	Unknown	No	It appears that this strategy is not advancing.
No. 9 (R)	Baker Dam Re-licensing	FERC, USACOE, PSE	Yes?	No	Unknown	Unknown	No	It appears that this strategy is not advancing.
Improve Basin Hydrology:								
No. 14 – (R) LID Impervious Surfaces	Use LID to reduce impervious surfaces	Local Govts, WDOE	Unknown	No	Unknown	Unknown	No	Some jurisdictions are allowing LID per NPDES requirements; Not led by watershed groups.
No. 15 (R) Dikes, Levies Skagit Flood Study	Dikes, Levies Skagit Flood Study	Local Govt., Flood Control Districts, USACOE	No	No	No	0	No	Not on the 3-Year Work Program
No. 16 (RS)	Climate Change	Skagit County	Yes	No	Unknown	1	Yes	Unable to Evaluate
Water Quality, Sediment Quality, Sediment Transport								
No. 17,18 (C) *Forestry*	No. 17,18 (C) *Forestry* Forest Roads, RMAP	Timber Co.'s WA DNR US Forest Svc	No	No	Unknown	0	No	None of the interested parties or agencies with jurisdiction are leading this

Chinook Salmon Recovery Plan Element SKAGIT RIVER	Key Strategies; Type: R=Regulatory C=Capital I = Incentive RS=Research P=Planning	Responsible Lead or Agency with Jurisdiction	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Total # Projects In Progress	Filling Gaps called out in NOAA Suppl.	Comments
								effort in Skagit.
No. 19 (R)(I)	Small Forest Landowners	Unknown	No	No	Unknown	0	No	No one is leading this effort in Skagit.
No. 20,21,24,29, 41,42,44 (P)(R)(I)(RS) *Agriculture:*	Various Strategies, including: TMDL, Drainage Maintenance Plans, Enforcement of farm plans; Monitoring, WQ Grants, Land Acquisition; Technical Assistance	Various: but primarily Skagit County DOE DFW Conservation District	Yes as to habitat protection on Ag lands. No- all other strategies.	No	Unknown	0	No	Skagit County is regulator, but does not have a formal seat at the Ruckelshaus Center table. Process may not address all Ag strategies in Plan. No one is leading this group of strategies in Skagit. Most are not being implemented. Farmer opposition to regulatory habitat protection is high.
No. 24,26,27, 30,32,33,34, 35, 36, (R)	Changes to Federal and State Environmental Regulations; Enforcement	Various – State/Fed agencies, Legislative Branches	No	No	No	0	No	No political support in Skagit for this set of strategies. No one is advancing them.
No. 24, 30	Changes to local environmental regulations SMPs Flood Hazard	Skagit County, Cities with shorelines and flood insurance programs	Yes	No	Unknown	2	No	2 regulatory updates are mandated by fed/state law. Cities and County are updating; WRIA 3/4 is not leading this effort.
No. 37(C)(R)	Mitigate Emergency Flood Maintenance	Unknown	No	No	Unknown	0	No	WRIA 3/4 is not leading this effort. County may be advancing.
No. 38,39 (P)	Flood fight planning	USACOE Dike, Drainage Districts	No	No	Unknown	0	No	WRIA 3/4 is not leading this effort. County may be advancing.
No. 40 (R)	Enforcement of Habitat Protection	WDFW Skagit County Cities	No	No	Unknown	0	No	WRIA 3/4 is not leading this effort. Agencies may be advancing.

Chinook Salmon Recovery Plan Element SKAGIT RIVER	Key Strategies; Type: R=Regulatory C=Capital I = Incentive RS=Research P=Planning	Responsible Lead or Agency with Jurisdiction	Prioritized ?	Part of 3-Year Work Program	Cost Estimate	Total # Projects In Progress	Filling Gaps called out in NOAA Suppl.	Comments
No. 43 (P)	HPA Permits– share information	WDFW Skagit Tribes	No	No	Unknown	0	No	Unable to evaluate.
Protect Riparian Areas and Wetlands								
No. 44,45,46	Use BAS in Protection CAOs, SMPs CREP	Skagit County Cities DOE WDFW CTED NRCS	No	No	Unknown	0	No	WRIA 3/4 is not leading this effort. Agencies may be advancing.
No. 44,45,46	Forest & Fish Exemption	NMFS Parties to HCP Timber Companies	No	No	Unknown	0	No	WRIA 3/4 is not leading this effort. Agencies may be advancing.
Estuary and Nearshore								
No. 48,49, 50 (R)	Use Shoreline Regulations to protect habitat.	WA DOE Skagit County Cities	No	Yes, but not for this specific action	$500k to Skagit County; Don't know about others.	1, possibly others	No	Proposal requires local governments to impose stricter regulations than state regulations. Assumed significant shoreline landowner opposition.
No. 51, 52 (P)(R)	Oil Spill Response	WA DOE US Coast Guard Citizen Groups	No	No	Unknown	0	No	May require regional effort beyond Skagit; No one is leading this effort.
Fish Passage and Access								
No. 53, 54, 55 (R)	Fish Passage standards	USACOE NMFS-Section7 WA DFW-HPA WSDOT Skagit County Cities	No	No	Unknown	0	No	Some issues here are implicated in the ongoing culvert litigation. Regional issue. This would take a change to federal, state and local construction design standards and regulations. No one is leading this effort in Skagit.

STILLAGUAMISH RIVER BASIN – WRIA 5

Photo: Snohomish County Surface Water Management

PROFILE: The Stillaguamish River is the fifth largest tributary to Puget Sound. The Stillaguamish Watershed drains an area of approximately 700 square miles and includes more than 3,112 miles of river, stream, and marine shore habitat (Figure 1). Elevations in the watershed range from sea level to about 6,854 feet on Three Fingers Mountain. The river enters Puget Sound at Stanwood, 16 miles north of Everett in northwestern Snohomish County. The watershed drains into both Port Susan and Skagit Bay. It is also part of the Whidbey Basin, which includes Skagit Bay, Saratoga Passage, Port Susan, and Deception Pass. The Stillaguamish Watershed can be divided into three general regions: the North Fork, South Fork, and Lower Mainstem. The two forks join in Arlington, 18 river miles from the mouth. The four largest tributaries to the Stillaguamish River system are the Pilchuck and Boulder Rivers, and Deer and Canyon Creeks. The watershed includes land governed by Snohomish and Skagit Counties, the cities of Arlington, Stanwood, and Granite Falls, and the Stillaguamish and Tulalip Tribes. Land use within the Stillaguamish Watershed is 76% forestry, 17% rural, 5% agriculture, and 2% urban (Snohomish County 1995). Federal, state, and private forest land uses occupy the majority of the watershed. The Watershed also includes 22 miles of marine shoreline. A significant portion of the shoreline has been armored. Much of the estuary has been converted to agricultural uses.

Major Industries: Forestry, farming, rural residential services and municipal governments

Important Groups: The Stillaguamish Watershed Council (SWC) is a broad-based watershed stakeholder committee with 25 members representing local municipalities, tribes, state and federal government agencies, agricultural and forestry interests, flood control districts, environmental groups, and citizens. The SWC was established in 1990 to review implementation of the Stillaguamish Watershed Action Plan, which addressed water quality problems in the Stillaguamish Watershed. In the mid-1990s, with leadership from the Stillaguamish Tribe and Snohomish County, the SWC began addressing salmon habitat restoration issues in the watershed and produced the *Technical Assessment and Recommendations for Chinook Salmon Recovery in the Stillaguamish Watershed* for the Puget Sound Chinook Salmon Recovery Plan.

Limiting factors: The habitat limiting factors for Chinook salmon populations in the Stillaguamish Watershed are grouped into six categories: riparian, estuarine, large wood, floodplain, sediment, and hydrology (STAG 2000). Spawning habitat is limited for Chinook salmon in the Stillaguamish Watershed due to poor gravel stability and high percentage of fine sediment levels resulting from extensive landslides and flooding in the watershed. Limited numbers of Chinook salmon are observed spawning below major landslides in the basin (Gold Basin on the South Fork and Steelhead Haven on the North Fork), presumably due to the impacts of fine sediment on these potential spawning area. Conversion of much of the floodplain to agricultural production, as well as forestry land uses throughout the watershed beginning in the mid-1800s, have been a significant source of habitat loss and continuing degradation. The long-term absence of mature riparian vegetation throughout the floodplain has had detrimental effects on existing habitat. Losses of salt marsh and tidal channels from reclamation of tidelands, constricted channels, and cut-off sloughs have significantly reduced the quantity and quality of juvenile and adult salmonid habitat. Riparian and upland clearing, ditching, and associated road construction have led to large changes in channel morphology, increased peak flows and stream temperatures, and have caused filling of holding pools, loss of wetlands, channel instability, and a reduction in large woody debris. These clearing-related activities have been the primary cause of reduced salmon egg-to-fry survival.

Implementation Assessment - Summary of Key Findings

The watershed Recovery Plan. The Stillaguamish watershed recovery strategy adopted capital restoration goals by habitat/limiting factors type, and also established programmatic goals by land use types and limiting factors. Their efforts since adoption have focused heavily on capital actions rather than programmatic items. In terms of their capital efforts, they have accomplished a significant amount of work, and have attempted to measure their progress using numerical targets where possible. Recent examples of success include the completion of several projects (including the Lower Pilchuck Wetland Restoration, Blue Slough Channel Reconnection Phase III, ELJ Placements on the North and South Fork Stillaguamish Rivers, Stillaguamish Big Tree replacement project, Knotweed and Spartina invasive species control and the Leque Island and TNC Dike Removal projects. One difficulty encountered in reviewing their work is the new format they have adopted for their 3-year work program, which fails to show all of their intended, but not funded projects, and lacks specific project costs. On the positive side, they are tracking their progress in tangible metrics, so it is easy to see where progress is and is not being made.

However, the Stillaguamish Watershed Council (SWC) states that they are making steady progress in their ongoing projects on "fish passage, hatchery, harvest, outreach and education, monitoring and adaptive management. They currently have 62 noncapital projects listed on the 3-year work program which have an unfunded need of $17.335 million. With regard to their protection strategies, several of the policy and programmatic strategies identified in the Plan are being advanced. One highlight in the watershed's implementation efforts is the breadth and quality of the outreach and education programs that are underway. Protection of remaining habitat is a high priority discussion item within the SWC, and individual partners are tracking regulatory updates (such as CAOs, SMPs, GMA Comprehensive Plan updates), but the SWC stated "our local watershed stakeholder group, has not felt they have the jurisdiction nor the authority to require any compliance with our Chinook Recovery Plan." (2010 Stillaguamish 3-Year Work Program Narrative at p. 6).

In the 2010 Narrative, they make a very strong statement that they do not feel as a watershed that they can recover Stillaguamish Chinook Salmon "*without major changes made at the State and Federal levels including: adequate instream flows, improved timber harvest regulations and enforcement to reduce peak flow activity, improved water quality enforcement and compliance, improved protection and enforcement on agricultural lands, and development regulations that protect critical habitat throughout the floodplain and the estuary. Many of our biggest hurdles to recovery need regional action."* Id. Watershed staff stated their concern with the agricultural community demands for "no net loss of farmland" in response to salmon recovery restoration actions. They stated that the SWC is struggling with the political dynamic related to floodplain management and reconciling competing uses of landowners and the need to protect and restore floodplain functions.

In terms of their overall progress since 2005, they have accomplished the following toward their established 10-year habitat restoration goals.

At 5-Year Mark – Expected Pace is 50% to Goal or Better on Primary Limiting Factors:

- 235.7 of 400 acres of riparian habitat restored – 59% to goal
- 0 of 315 acres of estuary marsh land created or restored – 0% to goal
- 4 of 51 engineered log jams (LWD created) – 8 % to goal
- 6.7 of 34.1 acres of floodplain habitat reconnected or restored – 20% to goal
- 1 of 2 landslide restorations - 50% to goal
- 82 of 106 miles of forest road treatments – 77% to goal
- 525.35 of 1,445 acres of land acquired in priority reaches – 36% to goal

Despite their best efforts, the Stillaguamish Watershed Council (SWC) self-reports that they are **on pace in some areas, but not on pace in others to achieve their 10-year goals.** As shown in the table above, they are ahead of the expected pace in restoring riparian habitat and working on forest land road treatments and landslide restorations in key areas. However, they are behind the pace in restoring estuary areas, ELJs, floodplain and protection through acquisition. The SWC reports that in the

area of floodplains, they are losing ground with new armoring and structures being built. It should be noted that there is no monitoring data that shows the status and trends of habitat losses and gains within the Stillaguamish watershed, so we cannot say with certainty whether there has been a net increase in habitat as a result of the watershed's actions. Additionally, the SWC is not advancing key habitat protection strategies and is asking for help from the state and federal governments to move these issues forward.

In terms of their financial need, the 3-year work program identifies a total of:

- **24 capital projects** (mainly habitat restoration) with a total 10-year project cost estimated at $44.934 million. Their 2009-1011 PSAR funding allocation is $2.286 million. We were unable to calculate their available funding due to the 3-Year Work Program format. The cost to accomplish work planned within the next 3 years is $14.552 million.

- **62 non-capital programs** (including project development for capital restoration projects, habitat protection programs, harvest and hatchery noncapital projects, outreach and education, scientific studies and assessments, stewardship, monitoring, cross-watershed coordination, lead entity support). The identified funding need to fulfill these projects in the next 3 years is $17.335 million.

Without significant additional financial support from other sources, it is unlikely that the work will be accomplished in that time frame. SWC staff recommends that the state and federal granting agencies loosen the grant requirements by removing local match requirements. They noted that they are now spending a significant amount of staff time trying to satisfy grant requirements and it is simply becoming too costly and inefficient to continue participating.

What do they need to get back on pace?

Regional support from the state and federal agencies on habitat protection issues. The SWC has asked for regional political and policy support on protection issues, which they find difficult to address at the local level. They feel frustrated in their efforts to achieve better habitat protection and the lack of political will to achieve it at the local level. Staff noted that there is a lack of parity in the different protection standards that are required to be met across different regulatory programs and that it needs a solution on a larger scale (such as federal, state or regional basis).

Possibly additional funding to speed up restoration activities in areas that are lagging behind (although we cannot say this definitively because we lack adequate data). Additionally, the SWC reported that it is a capacity issue to gain the data they need in the form they need from DNR and USFWS.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Adaptive Management. Like other watersheds, the Stillaguamish watershed needs additional support to continue its work on adaptive management planning. This work was flagged by NOAA as a critical gap in the entire Recovery Plan. As such, NOAA and/or the PSP may want to consider providing them with additional resources to speed up this work.

Habitat Status and Trends Monitoring. Having established numeric habitat goals for recovery, it would be particularly helpful if funding were made available to the SWC to begin funding monitoring programs, especially the status and trends of each of the sub-basin areas against such goals to ensure that losses are not occurring that threaten the significant investments they have made in restoration activities.

Program and Staff Capacity Funding. The SWC needs additional funding for programs and staffing, including:

- a new building to house their program operations;

- Funding for highly-focused landowner outreach for acquisition
- 1.0 FTE program coordinator for public education and outreach;
- 1.0 FTE planner staff to work on regulatory programs
- 1.0 FTE biologist to provide technical support for projects and programs

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: STILLAGUAMISH RIVER WATERSHED

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
HABITAT STRATEGIES										
Habitat Restoration Strategies - *By Limiting Factor*										
Riparian Areas										
Restore 400 acres of riparian forest in Tier 1[12] areas; exclude livestock; protect existing native vegetation and control invasive plants.	3 projects: -Banksavers Inmate Crews; -S. Fork big trees; -N. Fork big trees	Stilly Tribe Sno County	Yes	Yes	No	Some	Yes – annually; $3.466 million total project;	3 of 3; 1 complete	No	Completed 184.5 of 400 acres since 2005. Projects are ongoing. Cost per acre is $8,667.
Estuary/Nearshore										
Restore blind tidal channels and marsh habitats by removing or setting back dikes, restore pocket estuaries, restore marine shorelines (remove bulkheads)	Several capital and 1 noncapital project						Total amount all projects is $4.619m plus $927k			
115 acres of tidal marsh at WDFW Leque Island;	Leque Island Project – 115 acres	Ducks Unlimited	Yes	Yes	No	Yes	Yes – Amount Not stated	1 – project construction not started yet.	No	This project is funded but hasn't started yet.
150 acres of tidal marsh on TNC property at Hat Slough	Port Susan Bay dike removal – 180 acres	TNC	Yes	Yes	No	No	No – concept phase	0	No	Project not started or funded.
120 acres of new tidal marsh by removing spartina at Hat Slough	No projects on the 3-year work list	Unknown	No	No	No	No	No	0	No	There is no specific action related to this strategy.
LWD										

[12] Tier 1 = Upper N. Fork Stilly, Squire Creek, French Segelsen, Lower Canyon Creek and Lower S. Fork Stilly sub-basins

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
Install 51 ELJs in North and South Forks; stabilize eroding stream banks.	N. Fork ELJs-1 S. Fork ELJs-3?	Stilly Tribe Sno County Snoh. CD	Yes	Yes	No	Yes	Yes Individual costs not stated; total cost of all project is $3.9 million	1 of 3	No	2 projects completed and 2 funded – 1 is ongoing and 1 has not yet started. Progress since 2005 is 4 ELJs; remaining goal is 47
Floodplain areas										
Reconnect main river channels with side channels and sloughs, forested wetlands and remove dikes, armoring and structures in Lower Stilly, Lower N. Fork Stilly, Middle N. Fork Stilly and Lower S. Fork Stilly sub-basins	Create comprehensive floodplain function strategy	Snohomish County	Yes	Yes	No	No	Need $27K	0 of 1	No	This project is not yet started.
Remove 4.1 miles of bank armoring in reaches above confluence of N and S Forks Stilly.	5 projects: 2 underway: Blue Slough Phase 2-3 and Jim Creek Restoration Design; and 2 are concept only; 1 seeking funding (Chatham Acres Armor removal)	Stilly Tribe, SSFETF	Yes	Yes	No	Yes	$1.309m remove armor; $3.553m restore	2 of 5	No	3 projects complete; 2 underway – progress since 2005 is 6.7 acres of 4.1 miles. Projects need funding to advance.
Sediment										
Stabilize large landslides along the mainstem river at	Gold Basin Feasibility and	Stilly Tribe, USFS,	Yes	Yes	No	Yes	Yes – total all	2 of 3 Gold Basin	No	These projects are underway.

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
Steelhead Haven and Gold Basin	Design; Gold Basin Construction; Steelhead Haven Slide Remediat.						projects is $4.635m; 2 projects funded but costs not stated; 1 project not yet funded	construction is concept only.		
Treatment of 106 miles of forest roads in Upper N. Fork, Frenche-Segelsen, Deer Creek, Middle N. Fork Stilly, Upper Canyon Creek, Robe Valley and Lower Canyon Creek Sub-basins	Segelson Road Treatments Deer Creek Headwaters Erosion Control; Higgins Instream, Canyon Creek Roads Phase I and II; -Trangen Meander Feasibility and Design	Snoh. CD, Stilly Tribe, USFS, Snohomish County	Yes	Yes	No	Yes	Yes – Total all projects is $4.367 million	3 of 4	No	Projects are in progress; 1 has funding for phase 1 only; needs additional funds.
Hydrology										
Restore floodplains to reduce peak flow and low flow impacts; reduce forest road density	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Identify optimum instream flow levels; take actions to reduce water consumption.	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Secondary Limiting Factors:										
Fish Passage and Barrier Removal										

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
Reconnect habitat disconnected by human impacts (dikes, levees, tide gates, dams, roads, bridges, railway berms).	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Remove undersized/blocking culverts	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Water Quality and Quantity										
Take actions to reduce stream temperature, increase D.O., reduce fine sediment/turbidity from tributaries and mainstem reaches.	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Ensure full implementation of the Stillaguamish Instream Flow Rule.	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The SIRC is not leading or advancing these strategies.
Habitat Protection Strategies										
Acquire 1,445 acres of land or easements to protect and/or restore habitat NEW PROJECTS	7 projects identified; 4 in progress, 3 at concept stage	Varies: CLC/Stilly Tribe, City of Arlington,	Yes	Yes	No	Yes	Partially – total cost is $17 million Unfunded need is $9.1 million	4 of 7	No	5 projects complete; 4 projects in progress 3 at concept stage; Need funding to complete. These acquisitions are not stated in the Plan, but were added here for convenience.
10 incentive strategies: tax reductions, promote local farming, promote stewardship, streamline	Currently 4 program underway	Snohomish Conservatio. District	Yes	Yes	N/A	Part	202,100	4	N/A	Various projects are underway and ongoing.

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
permitting, TDR/PDR, LID reduce fees, water conservation										
Comp Plans and Policies										
P-14 separate policy recommendations for inclusion in GMA Comp Plans or SMPs, other policy documents	1 project identified	Snohomish County	No	Yes	N/A	No	Unknown	0	No	This project has not yet started; although Comp Plan updates are annual and SMP update is underway.
Land use by Type, Agriculture										
P- Support sustainable Agriculture; -Retain agriculture infrastructure; -Avoid subdividing ag land, -buy conservation easement, install vegetated riparian buffers, -use CREP funds;-Provide Asst for Capital projects	Various programs to support agriculture and protect ag land are part of the 3-year work program within the non-capital section.	Snohomish Conservat. District	Yes	Yes	N/A	Yes, Part	See above.	See Above	N/A	These projects are already counted above and are not listed here to avoid duplication.
Forestry										
P-8 strategies: -Protect intact forest lands, -Minimize forest cover loss; Promote sustainable forestry, -Support LU policies for forestry production -Discourage land conversions to residential development, Use Stewardship plans, TDR/PDR Buy land for salmon habitat;	2 noncapital programs: Forestry stewardship education program and proposal to strengthen forest practices regulations	DNR	Yes	Yes	n/a	No	$149k for ongoing program; other program – funding is not yet known.	1 of 2	No	Forestry stewardship education program is presently ongoing; proposal to strengthen forest practices regulations has not yet been scoped or started. Most other strategies are not yet underway.

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
Educate and assist small land owners; monitor forest lands										
Rural Residential and Urban land use										
P-Avoid UGA expansions in critical habitat, focus Growth near infrastructure limit high density residential devel outside UGA, Develop Urban forestry programs, Provide EDU and Tech Assist to homeowners on natural yard care. Protect critical areas and forest cover, use AMM; R-Enforce clearing ,grading, Tree retention regulations	7 programs proposed to implement this set of land use proposals.	Varies	Yes/Some	Yes	Yes	Part	(Only 1 program has a budget of $154k in needed funding; other program have not yet been costed)	1 of 7	No	Most of these programs are not underway.
Roads and Utilities										
R/I, 7 strategies: avoid impacts to critical areas Apply BAS in road projects to min habitat impacts Develop mitigation BMP, limit infrastructure outside UGA and outside critical areas Prevent new fish barriers	No programs found on the 3-year work program apart from general critical areas protection program.	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.
Regulatory and program actions *by habitat type*										
Riparian Areas										
R- 5 strategies to protect riparian areas	3 project proposals re: critical areas,									The Forum is not leading or advancing these strategies.
LWD										

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
R-3 prohibit removal of LWD in riparian areas Salvage hazard trees for log jams; Install safe log jams	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.
Floodplain										
R-13 strategies to map, restrict, min, floodplain alteration use LWD in flood control projects Use natural features and Bio-engineering In flood control use DFW ISPG for shoreline modification guidance	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.
Sediment										
R- 6 strategies to: -ID and map landslide hazard areas; restrict land uses in those areas; use bmps to prevent erosion; develop seasonal clearing and grading restrictions	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.
Hydrology										
8 strategies to protect and restore hydrologic processes, infiltration -R- adopt grading ordinances -regulate using DOE's 2001 WWSMM -P - develop stormwater plans – retrofit; min. impervious surfaces, use	No programs found on the 3-year work program	Counties, Cities DOE	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies. But, many of these are part of the NPDES program which is being required by WDOE.

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
LID, protect and restore wetlands										
Water Quality										
3 strategies: ID and eliminate pollution sources; participate in regional monitoring; Protect and restore wetlands.	1 NPDES and 2 LID programs	WADOE, PSP, SnoCo, NOAA	Yes	Yes	No	no	$378k for 2 of 3 projects; 1 not yet scoped	2 of 3	No	2 of 3 projects are underway.
Noxious weed										
2 strategies: Implement Integrated Pest Management Program	There are no programs on the 3-year work program re IPM;	Various	Yes	Capital projects – yes; Non-capital – no	No	Some	$10m total cost for 10-year goal; no funding	0	No	Although the IPM is not being advanced, the Stilly has been engaged in capital work to remove noxious weeds (spartina – treated 1,928 acres and knotweed – treated 435 acres since 2005)
Mitigation										
R-3 strategies to mitigate impacts to salmon habitat, send mitigation projects to watershed restoration; use mitigation banks, develop a mitigation funding program from violators	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.
Enforcement										
R-3 strategies that Prioritize areas with high restoration potential and habitat linkages, prevent poaching of salmon	No programs found on the 3-year work program	Unknown	No	No	N/A	No	0	0	N/A	The Forum is not leading or advancing these strategies.

Chinook Salmon Recovery Plan Element STILLAGUAMISH RIVER WATERSHED	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	Comments
P-10 strategies to improve existing enforcement programs through coordination, hotlines, funding, penalties, BAS etc	1 program to improve enforcement of regulatory programs	Unknown	No	Yes	N/A	No	Unknown	0 of 10	Yes	While 1 project is on the 3 year work program, it is not yet scoped and funded.
Education and Outreach										
7- Strategies to increase public awareness , support, technical knowledge for salmon recovery	The watershed has 14 outreach, education and stewardship programs to implement this strategy	Varies by project: Stillaguamish Tribe; Snohomish County; Arlington; MRC, WSU, etc.	Yes	Yes	n/a	Yes, part	765,805	14	No	Multiple programs underway. See 3-year work program, Non-Capital Stewardship Section.
Monitoring and Adaptive Management										
	22 monitoring programs	Various	Yes	Yes	Yes	Part	$3.973 m needed for scoped programs	16 of 22	Yes	16 monitoring programs are underway; 5 are not started; and 1 is complete.

ISLAND COUNTY (WHIDBEY & CAMANO ISLANDS) – WRIA 6

Photo: Island County, Washington

PROFILE: Island County is home to two large islands, Whidbey, the third largest island in the lower U.S. and Camano. It also includes three small islands of Ben Ure, Strawberry and Smith Islands. Whidbey Island is at the east end of the Strait of Juan de Fuca and the northern edge of Puget Sound. Skagit Bay lies between Whidbey and the mainland north of Camano Island. Saratoga Passage is formed between Whidbey and Camano Islands. A protected marine area lies between Camano Island and the mainland known as Port Susan. Large deposits of glacial till provide fertile farmland soils on Camano and Whidbey Islands. The till also feeds eroding bluffs which nourish beaches, spits and mudflats that drive a productive food web supporting animals from ghost shrimp to gray whales. Whidbey Island is home to a major Naval Air Station and both major islands support tourism and recreational uses. The islands are important foraging habitat for Juvenile populations from many different watersheds and for migratory adults (especially Admiralty Inlet and Possession Point). Bull Trout from the Skagit, Stillaguamish and Snohomish systems also use the nearshore and shorelines as marine foraging areas.

Major Industries: U.S. Navy, farming, tourism and health care, retail and commercial services

Important Groups: Island County Water Resources Advisory Committee (WRAC), Salmon Technical Advisory Group (TAG), Marine Resources Committee, Island County, U.S. Navy

Limiting factors: This watershed is mainly a nearshore contributor to recovery, as the Islands do not have Chinook Salmon populations in their freshwater streams (although they do support coho salmon and resident cutthroat). The Islands have 212 miles of shoreline and although 25% of it remains largely undeveloped today, 80% of its parcels are slated for residential development. More than 60% of the Islands coastal lagoons have been isolated from natural tidal processes. Wetlands have been filled, tide gates and bulkheads installed, and shade-producing vegetation has been removed for views. Shoreline alteration has interrupted the natural processes that nourish beaches and eelgrass beds important for spawning for forage fish (sand lice, smelt and herring), which in turn interrupts the food web important for salmon and other species. Upland drainage flows and pollution sources from residential uses, agriculture and boat discharges (such as nutrients and oil) also have cumulative effects on species composition which change the nutrient dynamics of the marine ecosystem, changing the food available to young salmon.

Implementation Assessment - Summary of Key Findings

The original Recovery Plan. The Watershed's strategic approach to its Recovery Plan was to place the highest priority on protecting healthy nearshore processes and habitats. The Plan states that protection will result from a combination of current land use regulation and voluntary actions. However, the plan focuses on *voluntary* actions that enhance the level of regulatory protections, and increasing community understanding of salmon needs and participation in salmon recovery. The goals and objectives were written to provide "a salmon recovery strategy framework that will enable recovery actions *when the time, resources and landowner willingness are available*." (WRIA 6 Plan, May 2005). As such, it appears that the original Plan was not set up to be driven by the lead entity. Instead, it would be advanced as resources are available, and only where landowners are willing to participate. The Plan did not establish any quantitative goals for habitat protection and this continues to hamper their long-term focus.

Habitat Protection – Programmatic Efforts. In the 2010 Narrative to their 3-Year Work Program, WRIA 6 states that its approach today toward protection is one of both regulation and voluntary efforts. They state that priority items include the County's update to the Shoreline Master Program (SMP) as well as the development and promotion of incentives such as low impact development (LID) and public benefit rating system (PBRS) programs. Although this is a positive change for the watershed group, Island County's past efforts to adopt portions of its CAO and recent challenges to their efforts to legitimize subdivisions of land caused by road crossings on rural

and natural resource lands, show that compliance with the GMA has been difficult for the County. Adopting tougher regulations to protect shorelines may prove equally difficult for the County and cities, where shoreline residential development is a premium land use. More work is needed in this area of protection, especially on Whidbey Island, where many undeveloped, nonconforming lots pose a significant challenge.

Habitat Protection/Restoration – Capital Programs. In terms of their habitat restoration and protection work, WRIA 6 accomplished two habitat acquisitions for restoration in 2009 of approximately 70 acres total. In terms of the next 3-year period, they have identified the following projects and programs that still need to be accomplished:

- 18 total capital projects – with a total cost of $24.5 million: available funding in the amount of $3.7 million, for a gap of $20.8 million:
    - 9 habitat restoration with a total project cost estimated at $**2.08 million**. They have identified $ 500,000 in funding sources, resulting in a funding gap of $2.03 million.
    - 9 acquisition sites with high priority intact habitat for protection for a cost of $**21.7 million**, with funding available in the amount of $3.2 million, with a gap of $18.5 million.
- 60 Non-capital programs and projects (including capital project development, outreach and education, stormwater programs, monitoring, watershed collaboration and lead entity work), with a total cost estimated at $5.2 million. They have secured funding for $1.3 million, with a gap of $3.9 million;
- 20 Priority capital and programmatic actions benefitting non-listed species with a total cost of $2.9 million, with available funding for $1.1 million, for a gap of approximately $1.8 million.

WRIA 6 has a PSAR biennial allocation of just over $1 million for 2009-2011 ($260,000 for 2010). Obviously, this is insufficient to close their funding gap of $26.5 million. Staff notes that the funding amounts shown do not capture the costs associated with technical staff time incurred in reviewing and developing these projects and programs annually.

Increased Staff Capacity. It should be noted that WRIA 6 has identified a need for an additional 4 staff to increase their capacity to engage in restoration projects. These 4 staff will identify and scope new projects, work on obtaining funding for them and provide landowner technical assistance. The proposed annual cost of this work is $75,000. No funding sources have been identified for these new positions. In addition, WRIA 6 has identified the need for 2 new staff to increase their nearshore staffing capacity. These two staff will scope nearshore projects, engage in fundraising, data synthesis and handle presentations for the watershed. The total annual cost of these positions is $42,000. No funding sources have been identified for these positions. In total, these 6 new positions have a 3-year total cost of $382,500.

In addition to those specific habitat restoration staff resources, when asked what their specific staffing array should look like, staff reported that they need the following positions to fully implement their Plan:

- 1.0 FTE Project Development Manager (to begin their habitat protection program, manage grants and funding)
- 1.0 FTE Biologist (for project development and program technical support)
- 1.0 FTE Outreach and Education coordinator
- 0.5 FTE GIS or IT staff to maintain and update the Habitat Work Schedule and their local website
- 0.5 FTE Clerical staff to support all programs

In terms of their pace against 10-year goals, this is difficult to assess because they did not establish firm 10-year goals. However, WRIA 6 self-reports that **they are behind where they would like to be in their work, mainly due to funding**. They lost their Lead Entity Coordinator for one year due to the downturn in the economy. This caused them to lose momentum, but they are making strides forward with a new hire and a reinvigorated planning group.

What do they need to get back on pace?

Political Support from the region or federal agencies to help them engage the US Navy and the City of Oak Harbor in their recovery efforts on a consistent basis.

Funding. WRIA 6 needs support from NMFS and the PSP to create and implement a funding strategy, especially for nearshore and pocket estuary projects.

Staff Capacity. In addition, WRIA 6 has stated very specifically where they need to add staff to work on nearshore and other capital projects, and to perform landowner outreach and technical support. Staff notes that they lack a political figure who can lead their salmon recovery efforts across Island County. The staff stated that they were unclear as to the role of the PSP and other agencies intend to play within Island County's recovery work and this needs to be resolved to ensure that all parties are coordinating effectively. Staff also noted that their local partners are lacking in staff capacity too, which effects the success of the entire program. Finally, given how few staff they have working on salmon recovery, it is difficult for Island County to participate consistently in larger, cross-watershed or regional issues.

Tracking Actions against Plan Goals and Strategies. The staff is requesting direction on how to track implementation so that it is useable at both the local and regional scales. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Long Term Goals. WRIA 6 needs support in developing quantitative 10-year habitat goals.

Adaptive Management. WRIA 6 has made it a priority in 2010 to begin working on adaptive management, but it appears they lack the funding and staff capacity (time, enough staff) to fully engage in adaptive management planning. They are awaiting the support of the RITT, which they expected would begin in 2010.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: ISLAND COUNTY (WHIDBEY/CAMANO) WRIA 6

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
HABITAT STRATEGIES								
Strategies: 1.1.1, 1.1.3, 1.1.5, 1.1.6	Use Northwest Straits nearshore habitat evaluation and data from MRC for list; Set goals for recovery and protection; Develop project feasibility analysis – (P)	Yes. Lead entities staff, salmon TAG	Yes	No. Projects are complete.	No	N/A	Multiple projects are now Complete	Project is complete.
1.1.2, 1.1.4	(RS) Develop historic shoreline inventory for salmon habitat; inventory imp freshwater habitats	Regional scientists or consultants?	Yes. Was to be completed 2005-2007 freshwater by 2010.	No	No	Unknown	2	Unclear as to whether this project is complete. The UW River History Project somewhat describes habitat types.
1.2.1	Assess potential for degradation – (P/RS)	Island County	Yes	No	No	Unknown	1	This is being done on a project basis (Ala Spit, Strawberry Point, South Camano Island) A Habitat Protection Matrix is being developed.
1.2.2 Develop private land habitat protection strategy for nearshore areas. (I/P)	Nearshore Integrated Protection Planning, Technical Assistance and Land owner Outreach	MRC, Island County, Coupeville, US Parks	Yes-1	Yes	No	$313K $127K avail. Gap: $186K	3	Penn Cove, Admiralty Inlet, Water Quality restoration and Camano Nearshore Protection Projects. Need additional funding. Conceptual phase – 2. Implemented – 1. TAG Sub-committee was developing shoreline protection matrix (2007-08); PBRS, LID program being implemented by the County.
1.2.3 Develop public	3 Projects: WRIA 6 County, state and federally owned	MRC, Island County	Yes -1	Yes	No	No Total cost	0	There are no funds available yet for these three projects.

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
lands habitat protection strategy for nearshore areas. (PRI)	nearshore protection projects					$205K $0 funds		
1.2.4	Promote pollution prevention strategies for water quality	WSU Island County	Yes	No but part of NPDES program	N/A	Unknown	Unknown	Compliance with NPDES regulations will drive this strategy forward. Staff report that this is being advanced by WSU, Sound Gardening Program, Pet Waste Campaign, Farm Management Plans,
1.2.5	Participate in CAO and SMP updates	Salmon TAG	Yes	No-CAO Yes-SMP	N/A	$750,000 No ?	2	CAO-wetland portion complete; others remain SMP – WRIA 6 staff are coordinating exchange of information with County staff. And other sections of CAO remain; expect completion in 2010-11. Unclear if this is funded.
1.2.6	Support enforcement that supports salmon habitat	Island County, Salmon TAG, CMU orgs	No	No	N/A	No	0	No one is leading this action item.
1.3.1 Work with willing land owners to protect or restore habitat in priority areas	Habitat Restoration Projects	Varies	Yes	Yes	No	Total cost $2.081M Avail: $500K Gap= $1.581M	9	This list represents the result of habitat assessments that have been ongoing. The biggest limitation is funding. They need to create a list of priority nearshore projects.
	Habitat Protection through Acquisition Projects - 9 projects proposed.	Whidbey-Camano Land trust, TNC	Yes	Yes	No	$21.735M Avail: $3.255M Gap: $18.48M	9	These represent high-priority acquisitions but there is little funding to move them forward.
	Develop future restoration projects – 8 projects on the list for development.	Multiple	Yes	Yes	No	$1.175M Avail: $105K	8	This represents a group of new habitat projects under development. They are severely

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
								limited by funding.
1.3.2	Support spartina control programs (P)	Island County Weed Control, WDFW, NGOs	Yes	Yes	No	Cost:$25K annually for 3 years. $60K funded.	1	Project underway. Large proportion of sites have been treated. Monitoring and traditional treatments planned on 15 acres.
1.3.3	Promote BMPs to reduce water pollution	Salmon TAG, Conservation Districts, Local/State agencies	No	No-but may be part of county and DOE NPDES program	No	$0	0	Does not appear on the 3-year work program. No one appears to be leading this action item. Is this part of the NPDES program ? Note: there are other water quality projects on the 3 YRWP, but not specific to this strategy.
2.1.1 Assess marine salmon distribution for habitat utilization – (RS)	No action on the 3 year work program. Is this complete?	SRSC, NOAA, Beach Watchers, Stillaguamish Tribes,	Yes	No?	N/A	No	Unknown	Whidbey basin assessment is ongoing. Also juvenile origins study (countywide) (2007); Chapman – WA Trout Study, Spawenr Surveys and Smolt Counts
2.1.2 Assess freshwater salmon distribution – (RS)	No action on the 3 year work program, but project is ongoing	Island County, State, Tribes, Contractors	Yes	No?	N/A	No	1	Kristoferson – WA Trout Survey, Tulalip Survey
2.1.3 Collaborate with other watersheds to determine important habitats. – (RS)	Skagit basin nearshore assessment PROJECT COMPLETE 2009							PROJECT COMPLETE 2009 Port Susan Marine Area
2.1.4 Work with Fed/State agencies that relate nearshore habitat to VSP.	No actions on the 3 year work program. Complete?	Lead entity, Salmon TAG, Fed/State agencies	No	No	No	No	0	Although some research is listed in the 3 year work program, none specifically link to this set of actions. Unclear as to whether anyone is leading these actions. Lack of funding is cited as obstacle for gaining updated information.
2.2.1	Assess feeder bluff	Coastal	Yes	Complete	N/A	Yes	1	Project completed

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
	connectivity – (RS)	geologic services						
2.2.2	Eel grass survey – (RS)	MRC Consultants	Yes	Complete	N/A	Yes	1	Project completed
2.2.3	Forage fish spawning beach survey – (RS)	WDFW, MRC Consultants	Yes	Complete	N/A	Yes	1	Project completed
2.2.4	Shoreline hardening survey – (RS)	Clyde Johnson, Beachwatchers	Yes	Complete	N/A	Yes	1	Project completed
2.2.5	Pocket estuary survey and habitat eval – (RS)	SRSC	Yes	Complete?	N/A	Unknown	1	Not listed on 3 year work program. Funding to keep research updated is inadequate. Skagit Bay – 10 sites being evaluated.
2.2.6	Mapping tidegates and stormwater outfalls – (RS)	Island County WSU?	Yes	Complete?	N/A	No	0	Not listed on 3 year work program but may be complete? May have been included in WSU beach hardening survey. Funding to keep research updated is inadequate.
2.2.7	Survey stormwater outfalls – (RS)	WSU Beach Watchers	Yes	Complete?	N/A	No	1	Not listed on 3 year work program but may be complete? May have been included in WSU beach hardening survey. Funding to keep research updated is inadequate.
2.2.8	Survey marine debris hotspots; develop clean-up plan – (RS)	MRC, Beach Watchers	Yes	Due 2010	N/A	No	1	Not listed on 3 year work program but may be complete? Cleanup by NWSC ongoing? Funding to keep research updated is inadequate.
2.2.9	Survey interactions btwn commercial shellfish operations and nearshore habitat processes – (RS)	Contractor	Yes	Due 2010 No?	N/A	No	0	Not listed on 3 year work program but may be complete? Funding to keep research updated is inadequate.
2.2.10	Develop shoreline water quality-monitoring program in areas of high salmon use – (P)	Island County, Conservation Dist and WSU Beach Watchers	Yes	Due 2010 No?	**Yes**	No	0	Not listed on 3 year work program but may be complete? Funding to keep research updated is inadequate.
2.2.11	Develop water quality-monitoring program in fresh	Island County, Conservation	Yes	Due 2010 No?	Yes	No	0	Not listed on 3 year work program but may be complete?

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	water systems to asses WQ and invertebrate communities – (P)	Dist, community groups						Funding to keep research updated is inadequate.
2.2.12 Implement stream flow monitoring program – (P)	Watershed analysis – connectivity of water resources	Tulalip Tribes Island County	Yes -2	Yes	Yes	No ? $40K	1	Monitoring program not on the list. Project started in 2005-06. Island County WQ Monitoring Program- initial evaluation of gauges from 2003 installations; some participation. Status unclear.
2.2.13 Inventory county culverts – (RS)	Completed in 2005-06	Island County Roads shop	Yes	Complete	No		Complete	Data compiled by Matt Nash.
2.2.14 Conduct physical and biological habitat surveys – (RS)	Various surveys Not on 2010 3-year list	Contractor	Yes	Not yet; Due in 2015	No	Unknown	Multiple	Project not scheduled for completion until 2015. Some work done in 2003-04. (WA Trout Inventories of Maxwelton & Chapman completed; Glendale culverts in 2005; WA Trout inventoried sections of K. Creek on K. Farm; Tulalips also performed electroshock in K. Creek.
	4 projects underway: Shore bird habitat, Puget Sound hydrodynamic, Camano forage fish study, Whidbey forage fish study.	Varies	Yes	Yes	No	Some	1 of 4	$9K funded for shore bird project. Other projects $ TBD, but funded
2.3.1	Encourage state/fed agencies to transfer management of pinnipeds to WDFW (P)	Salmon TAG, WSU, MRC, NGOs CDs, FEGs	Yes 2005	No	n/a	No	0	Does not appear to be an active project at this time.
2.3.2	Assist study of predation on salmonids and work w/other WRIAs on pops. (RS)	Island County WDFW, other WRIAs	Yes 2005-08	No	No	No	0	Not on the 3 year work program list.
2.3.3	ID realistic predation levels on salmon and forage fish	WDFW, Salmon TAG	Yes 2005-08	No	No	No	0	Not on the 3 year work program list.

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
		Lead Entity						
2.3.4	ID sustainable predator population	WDFW, Salmon TAG	Yes 2006-10	No	No	No	0	Not on the 3 year work program list.
2.3.5	Study and compare salmon loss from predation vs. habitat loss	Salmon TAG, WDFW, regional scientists	Yes 2010	No	No	No	0	Not on the 3 year work program list.
3.1.1-3.1.6	Develop and implement PIO strategy to educate public – (P) <u>12 programs proposed</u>: -Marine Stewardship Area Signage; -Community Knowledge Assessment; -Shore Stewards Shoreline Landowner Workshops; -Deception Pass Salmon Outreach Campaign; -Site specific seining results; -Watershed Stewardship Program; -Booklet: Salmon Swim Amongst Us -K-12 School Programs; -Sport fishing Outreach; -Glendale Watershed Education Program; -Return of Salmon Celebration -2010 Communication Plan	<u>Varies by Program</u>: Lead entity staff, Salmon TAG, consultant, Whidbey Watershed Stewards, FEG, WSU Extension, Oak Harbor, State Parks	Yes	Yes	N/A	Some; Total cost= $444K for 3 years; $129,500 available Gap is $314,500	12 programs	Funding is a need. NEP funds – community assessment. MRC Report in 2008. People with knowledge of this program include Barbara, WWS and Nancy Econet; 2007 Shoreline landowner workshops were done in Elger Bay and Harrington & Race lagoons.
3.1.7	Survey island County Residents –(RS)	Lead entity staff, Salmon	Yes by 2005	Yes	N/A	Yes $15K DOE	Project Complete,	2007 DOE integration grant funded baseline work; MRC planning to do

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
		TAG, consultant					more coming.	other survey in 2010.
3.2.1-3.2.3	Partner with other groups to disseminate info; expand network; develop standard project reporting format – (P) -2010 Communication Plan	Island County TAG	Yes – ongoing	Yes	No	TBD – concept phase	1	Will use Habitat Work Schedule to achieve this strategy.
3.3.1-3.3.3	Research ID and encourage behavioral changes for residents to support salmon recovery – (RS/P)	Salmon TAG, Contractor, Community groups	Yes 2006-2015	No	No	Unknown	Multiple	Plan narrative says this may be part of lead entity work. Not specifically found in 3 year work program. Past outreach included: 2007 Ala Spit Outreach, Strawberry Point Outreach, Shoreline Landowner Workshops, Bluff Pamphlet creation; BW seining, BW creosote; Shore Stewards program,
3.3.4-3.3.5	Participate on key local/regional water resource committees as salmon advocates; promote integrated planning – (P)	Salmon TAG	Yes	Ongoing	No	Unknown	0	Plan narrative says this may be part of lead entity work. Not specifically found in 3 year work program.
3.3.6	Compile research data, survey results into database – (P)	Lead entity staff, contractor	Yes	No	No	Unknown	1	Plan narrative says this may be part of lead entity work. Not specifically found in 3 year work program. Staff is using HWS.
4.1.1	Organize semi-annual discussions with BOCC – (P)	Salmon TAG	Yes 2005-2015	No	No	Unknown	1	Staff performs on an as-needed basis.
4.1.2	Encourage inter-disciplinary and inter-departmental participation in salmon recovery. –(P)	Island County, Salmon TAG	Yes 2005 - 2015	No	No	Unknown	0?	Does not appear than anyone is leading this project. Not on 3-year work program and no funding.
4.1.3-4.1.5	Support community and local sponsored projects; Conduct roundtables with	Lead entity and Salmon TAG	Yes 2005-2015	No	No	Unknown	0?	Does not appear than anyone is leading this project. Not on 3-year work program and no funding. Staff

Chinook Salmon Recovery Plan Element WHIDBEY AND CAMANO ISLANDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of Multi-Year Work Program	Filling Gaps called out in NOAA Suppl.	Cost Estimate	Total # Projects In progress	Comments
	affiliates							cite funding sources as PSAR, SRFB and CSF. See Integration Report.
4.2.1-4.2.5	ID and engage funding entities to support salmon actions	Lead entity and Salmon TAG, Community groups	Yes 2005-2015	Yes. It is the 3-Year WP.	No	Unknown	1	3-Year Work Program was developed to achieve this.
Develop an Adaptive Management Program								
4.3.1	ID set of ecosystem process and habitat indicators	Lead entity staff. Island County, Salmon TAG	Yes	Yes	Yes	Unknown	**1**	WS Narrative states that this project is ongoing to develop an Adaptive Management Plan. May use the MRC/UW AMM template. Need RITT involvement.
4.3.2	Develop and implement local status and trends monitoring program	Lead entity staff and Salmon TAG	Yes 2005-2006	No	Yes	Unknown	0?	Does not appear that anyone is leading this project. Not on 3-year work program and no funding.
4.3.3	Encourage projects sponsors to include adequate monitoring and eval in project proposals.	Lead entity staff and Salmon TAG	Yes	Ongoing	Yes	No	1	Does not appear that anyone is leading this project. Not on 3-year work program and no funding.
4.3.4	Produce an annual program summary	Lead entity staff and Salmon TAG	Yes	No	Yes	Yes	1	Part of Lead Entity work to update 3 yr work program, create narrative. Unclear if other reports are prepared.
4.3.5	Review progress on biennial basis; adjust work plans as needed.	Lead entity staff and Salmon TAG	Yes 2005-2015	No	Yes	No?	1	Assume that this work is ongoing as part of the 3-yr work program annual updates and funding allocation processes. Not clear if there is specific funding for this work.

Note: There are numerous other projects on the 3-year work program list that are being pursued by WRIA 6 (monitoring projects, non-listed fish habitat restoration projects, etc.) that don't specifically relate to the four original Recovery Plan goals.

SNOHOMISH RIVER BASIN – WRIA 7

PROFILE:

At 1,856 square miles, the Snohomish River basin is the second-largest watershed - behind the Skagit River basin--draining to Puget Sound. The Snohomish River basin includes the Skykomish and Snoqualmie rivers, which join to become the Snohomish River, and numerous smaller tributaries. The basin is in close proximity to the Seattle metropolitan area, yet still maintains a small-town charm, rural character, and the feeling of a family-owned farming community. The border between King and Snohomish counties bisects the basin. The Tulalip Tribes have a reservation in the northwestern portion of the basin and the Snoqualmie Tribe lives in the Snoqualmie Valley. Important land uses throughout the basin include forestry, urban, residential, light industrial, infrastructure (roads and railroads; gas, water, and power lines), recreation, agriculture, and mining. Private and federal forest lands and Federal Wilderness Areas comprise almost three-quarters of the basin. Agricultural lands, comprising approximately 5% of the basin, dominate the floodplains of the Snoqualmie, Snohomish, and lower Skykomish rivers. Rural residential development is scattered throughout the lowlands and river floodplains. The highest concentration of urban development occurs near the Snohomish River estuary. Cities range from Everett at the mouth of the estuary to Index, Skykomish, and North Bend in the mountains. A developed port and other uses exist along the Snohomish nearshore. Further, the basin is a major source of municipal water for the cities of Everett and Seattle, southwest Snohomish County, and other areas.[13] There are two populations of Chinook salmon in the basin: Skykomish and Snoqualmie. The Skykomish population has the highest Chinook recovery target set in Puget Sound and the Snoqualmie population has the third-highest target.

Major Industries: Aerospace, ports, commercial agriculture, commercial forestry health care providers, manufacturing, industrial, retail and residential services.

[13] The City of Seattle's Tolt Project supplies water to Seattle (north of the ship canal), Shoreline, Woodway, Lake Forest Park, and the area between Lake Washington and Lake Sammamish north of Interstate-90 (e.g., Bellevue, Redmond, Kenmore, Kirkland, Woodinville, and Duvall). The City of Everett's and Snohomish Public Utility District's Jackson Project in the Sultan River sub-basin supplies water to all of southwest Snohomish County (Everett, Edmonds, Mountlake Terrace, Lynnwood, Mill Creek, and Brier), Snohomish, Lake Stevens, Monroe, Marysville, Sultan, part of the Tulalip Reservation, Granite Falls, Arlington, and most of the areas in between these cities.

Important Groups: The local groups that convene all stakeholders (federal, state, local, tribal governments, nonprofit organizations, businesses, and citizens) and work to lead the Snohomish salmon recovery effort are the Snohomish Basin Salmon Recovery Forum, and its Technical Committee. The Forum includes: Cascade Land Conservancy, City of Carnation, City of Duvall, City of Everett, City of Gold Bar, City of Lake Stevens, City of Marysville, City of Monroe, City of North Bend, City of Seattle, City of Snohomish, City of Snoqualmie, City of Sultan, Coordinated Diking Council, Cross Valley Water District, East King County, Regional Water Association, King Conservation District, King County, King County Agriculture, Master Builders Association, Pilchuck Audubon Society , Port of Everett, Recreational Interests , Snohomish Conservation District, Snohomish County, Snohomish County Agriculture, Snohomish County, Public Utility District, Snohomish County Sportsmen's Association, Stilly-Snohomish Fisheries Enhancement Task Force, The Boeing Company, Town of Granite Falls, Town of Index, The Tulalip Tribes Citizen, The Tulalip Tribes, the Snoqualmie Tribe, and the Washington State Department of Fish and Wildlife.

Limiting factors: The Snohomish River basin is one of the primary producers of anadromous salmonids in the Puget Sound region. Nine salmon species are found in the basin, and the Forum has taken a multi-species approach to salmon recovery. This plan is based on an ecosystem approach, meaning that it considers the interaction of the biological community with the physical and chemical environment. Ecosystem processes throughout the river basin strongly influence habitat capacity and conditions downstream. Two distinct, naturally spawning Chinook salmon populations exist in the Snohomish River basin: Skykomish Chinook and Snoqualmie Chinook. Most of the Snohomish River basin Chinook spawn in the mainstems of the Skykomish and Snoqualmie Rivers, and in the Lower Sultan, Upper South Fork Skykomish, Lower Tolt, and Raging rivers. Both populations are at less than 10% of historic levels. The loss of rearing habitat quantity and quality along Mainstem Rivers, within the estuary, and in the nearshore environment is thought to be one key reason for the decline of Snohomish River basin Chinook salmon. Actions that improve the connection of floodplains to riparian forests and side channels, as well as those that improve habitat complexity in the vicinity of and downstream from Chinook spawning areas are predicted to be the most effective in improving population performance. Habitat actions in these areas alone, however, will not adequately address all viable salmon population needs. The most successful, lowest risk strategy for salmon recovery in the Snohomish River basin will include actions focused on restoring and preserving watershed processes across the basin, with special emphasis on rearing habitat improvements in the mainstem rivers, estuary, and Puget Sound nearshore.

Implementation Assessment - Summary of Key Findings

The original Recovery Plan. The Snohomish watershed habitat salmon Recovery Plan covers a very large geographic area with three major river systems, multiple types of land uses from natural resource uses to urban and industrial uses. As a result, the Plan is long and carefully focused. The majority of the plan focuses on land use policy changes and programs to protect and restore habitat. However, most of those specific strategies are not being advanced by the WRIA 7 Forum at this time. Similar to other watersheds, the Snohomish watershed's efforts are heavily weighted in favor of capital actions, rather than on funding and implementing non-capital programs. The recovery strategies for the Snohomish basin call for regulation to protect habitat, yet it appears that the Snohomish watershed, as a group, is not engaged in any policy or advocacy work that will result in the adoption of stronger regulatory protections.

In terms of the capital efforts, the Plan has been divided among six work groups, covering the priority areas of the Plan (Neashore Sub-Basin Strategy Group (SBSG), Estuary SBSG, Mainstem Primary SBSG, Mainstem Secondary SBSG, Rural SBSG and Urban SBSG), who are actively developing restoration actions, identifying parcels for acquisition and performing other planning work. The Forum established priorities for the sequencing of restoration actions across those sub-areas. In the near term (next 10 years), they determined that 80% of the restoration efforts should focus on the nearshore, estuary and mainstem rivers, 15% in lowland tributaries areas, and 5% in the headwaters area.

The Snohomish Watershed Forum enjoys the membership of two of the larger counties in Western Washington: King and Snohomish Counties, the City of Everett, many committed cities and towns, the Tulalip and Snoqualmie Tribes, businesses interests, utilities and NGOs. With this membership, they have resources at their disposal that some watersheds lack (e.g., highly trained specialists in scientific disciplines such as fish biology, geology, land use planners and policy experts, GIS capabilities and other technology, construction design teams and public works departments that can implement capital projects). As one would expect, the Snohomish represents a highly skilled and capable team, and they have enjoyed strong successes in implementing salmon recovery actions. As a watershed, the Snohomish has taken steps to begin H-integration of their priorities and strategies. Additional support is needed from the RITT, NOAA and PSP to complete this work.

One of the more significant issues that they are struggling with as a watershed is how to measure their programs that are designed to support protection (such as regulatory updates or outreach and education). While the WRIA is supporting and tracking regulatory changes for protection, they are not actively pushing for change because it is politically difficult for them to do so.

The Snohomish has recently been awarded an EPA grant which will allow them to complete a watershed characterization study within the next 4 years, to develop a protection strategy and address land development concerns and climate change (which is consistent with the recommendations in the Puget Sound Partnership's Action Agenda). Since last year, the watershed has completed six more capital projects representing $10 million worth of work (with more capital projects completed, but still on their project list, due to required ongoing maintenance). In terms of their overall progress since 2005, they have accomplished the following toward their established 10-year goals:

At 5-year Mark – Expected Pace is 50% to Goal or Better on Primary Areas:

- 0.2 of 1.0 miles of nearshore beach and shoreline restoration - 20% to goal
- 375 of 1,237 acres of tidal estuary restoration - 30% to goal
- 1.5 of 10.4 miles of restored edge habitat in the mainstem – 14% to goal
- 147 of 256 acres of riparian habitat restoration – 57% to goal
- 25 of 167 acres of off-channel habitat restoration – 15% to goal
- X of 41 logjams (data not available)
- 4 of 13 acres of rural riparian habitat (primary) restoration – 31% to goal
- 0 of 10 acres of rural off-channel habitat (primary) restoration – 0% to goal
- 16 of 75 acres of urban riparian habitat restoration – 21 % to goal
- (goal unknown) – urban off-channel habitat – 100% to goal

Despite their best efforts, the Snohomish Forum self-reports that they are **not on pace to achieve their near-term implementation goals.** The Forum's stated annual funding goal is to obtain $15-17 million. Their 2009-1011 PSAR funding allocation is only $2.343 million (and this only applies to capital projects), leaving them with a gap of $13-15 million to make up through other sources (which is unlikely). Their own analysis shows that they have been implementing at a pace of 34% of their annual restoration goal. In addition, little is known about the status of habitat losses that have occurred within the Snohomish Basin since the adoption of the Recovery Plan, so the net habitat restored may be less than that amount. Specifically, the 3-year work program identifies a total of:

- **85 Capital projects** (mainly habitat restoration) with a total project cost estimated at $ 172.6 million. They have identified $14.5 million in funding sources, leaving a gap of $158.1 million to complete all of the capital projects, (plus an unknown, additional amount for 2 projects that are in the early planning stages for which no budget was provided);

- **29 Non-capital programs** (including project development for capital restoration projects, habitat protection programs, outreach and education, scientific studies and assessments, monitoring, cross-watershed coordination, lead entity support), with a total cost estimated at $5.6 million. They have secured funding for 7 programs in the amount of $3 million, with a gap of $ 2.6 million for the remaining 4 programs. (They also need an additional, unknown amount for 15 programs that are included in the 3-year work program, but have no budgets or funding sources defined yet).

Finally, there is no mention of the development of an adaptive management plan for the Snohomish watershed within the 3-year work program, which is a gap called out in the NOAA Supplement.

What do they need to get back on pace?

Regional support to help them shape watershed programs, meet with elected officials, act as a sounding board on political and strategy issues, and to support their efforts to resolve issues that divide the watershed.

Funding. The Snohomish Forum needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, complex restoration projects in the high priority estuary (floodplains) and nearshore areas. Without a significant advance in annual funding, projects and programs important for recovery will continue to lag behind the expected 10 year goals. The Forum also needs support to establish investment policies for restoration in light of local political issues (i.e., the collision of agricultural demands in the floodplain with salmon recovery goals). They also note that their original modeling for recovery planning purposes weighted heavily in favor of nearshore and estuary projects. The staff suggests that it may be time to re-examine those investment assumptions to ensure that they are still the highest priority areas.

Staff Capacity. With local government funding at risk, the Forum needs funds to sustain existing staff and add new staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward, especially with regard to enhancing habitat regulatory protections and incentive programs. Additional support from the RITT and NOAA is needed to continue their efforts toward H-Integration. In terms of project management, staff notes that they need "value engineering" or some other means of reviewing projects by disinterested third parties to ensure that they are being as efficient as possible with grant funds. They cite project management (before, during and after construction) as a capacity gap that most watersheds face in terms of their current staffing.

When asked what their staffing level should be to fully support their implementation of the Recovery Plan, staff indicated that they need the following:

- .75 FTE – Lead Entity Coordinator
- .75 FTE – Planner to develop projects, manage the SRFB process, and populate the HWS
- 0.5 FTE – Associate Planner to support the project working group, clerical support, coordination and other support for the entire program.
- 1.0 FTE – Capital Projects Manager
- 1.0 FTE – Senior Project (Habitat) Manager (to run the technical committee and all technical issues on their project lists; engage in AMM)
- 0.5 FTE – Biologist (for field work, AMM and technical support)
- 0.5 FTE – GIS analyst
- 0.5 FTE – Outreach and Education program coordinator
- 1.0 FTE – Watershed Steward

Staff also noted that they are currently using accounting, public contracting and administrative services from within the Public Works Department of Snohomish County. These services need to be accounted for in considering the full funding of salmon recovery programs.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Adaptive Management. Like other watersheds, the Snohomish basin currently lacks the funding and staff capacity to engage in adaptive management planning. This work was flagged by NOAA as a critical gap in the entire Recovery Plan. As such, NOAA and/or the PSP may want to consider providing them with additional resources to speed up this work.

Habitat Status and Trends Monitoring. Having established numeric habitat goals for recovery, it would be particularly helpful if funding were made available to the Snohomish Basin to begin monitoring status and trends of each of the sub-basin areas against such goals to ensure that losses are not occurring that threaten the significant investments they have made in restoration activities.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: SNOHOMISH RIVER WATERSHED

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
HABITAT STRATEGIES										
Regional Strategies by Land Use: Section 9.0										
Agriculture - Section 9.1										
9.1.3 Adopt policy to protect intact habitat; Restore degraded habitat (P/R)	Completed by counties; not sure for cities or tribes; There are no actions advancing this strategy on the 3-year work program.	Snohomish County, King County, Cities, Tribes	Yes	GMA Update Cycle	N/A	Yes	Yes $869K EPA grant	1	No	As for the specific strategy, Counties have such policies in their GMA Comp Plans; Cities? WRIA 7 just received large EPA grant to develop a habitat protection strategy that should address these policy goals.
9.1.4 Help farmers ID and build restoration projects (P/C)	Sustainable Lands Strategy Project - Work with farmers, stakeholders and tribes to identify the best places for farms and salmon; find a balance.	Snohomish King Counties conservation districts	No	No	N/A	No	Funded (Amt Unknown)	1	No	Multi-party effort is now underway.
9.1.5 Use Incentives (I)	1 action underway; others unfunded.	King County and stewardship partners	No	Yes	No	Yes – PBRS	Partial $630K	2	No	Project 07-NC-009 PBRS is fully funded but the Snoqualmie Conservation Strategy is not funded. Other strategies need to be

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										developed in the Sno & King County areas.
Forestry 9.2										
All Non-Wilderness Forest Land										
9.2.1, 9.2.2, 9.2.3, 9.2.4, 9.2.5, 9.2.11 -Retain intact forest land (R/I); -Share data (RS) -remove forest roads (C) -Forest stewardship -Expand wilderness designations (R)	There are no actions advancing this strategy on the 3-year work program.	Unknown	No	No	No	No	0	0	No	These actions are not on the 3 year list except as noted below for federal forest land.
Federal Forests										
9.2.6, 9.2.7 Retain and Protect forests; (P); Implement Management Plans (P) and 9.2.8 – Decommission forest roads;	Two projects to implement 9.2.8 – South Fork Snoqualmie Road decommissioning	US Forest Service, M2SGT	Yes	Yes	No	Yes	Yes $1.025M	1 Design phase	No	This project appears to be underway.
	Alpine Baldy Road decommissioning	USFS and Sustainable Fisheries Foundation	Yes	Yes	No	No	No $680K cost Need $10K for 2010 surveys.	1	No	This project does not appear to have any funding.
	Harlan Creek Road Obliteration	USFS	Yes	Yes	Yes	Yes	Yes $600K cost; $491K funded	1 – Design phase	No	Project is underway; slightly underfunded.
	Bessemer Mountain Road	DNR, USFS	Yes	Yes	No	No	No $600K $0 funds	1 in Design phase	No	There is no funding for this project.
State Forests										
9.2.9, 9.2.11 Support implement Fish and	No actions on the 3 year list.	Snohomish Lead entity	No	No	No	No	0	0	No	Not on the 3 year work program list. Supporting the fish and forest

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Forest Agreement (P)										agreement requires significant staffing and policy work.
Lg. Commercial Forest Land										
9.2.10, 9.2.12 Protect and Restore habitat (I)	No actions on the 3 year list.	Snohomish Lead entity	No	No	No	No	0	0	No	Not on the 3 year work program list. WRIA 7 has determined that this area is a lower priority than other non-forested areas. As such they are not focusing work here in the next three years.
Small Forests & Rural Forest Land										
9.2.13, 9.2.14 Protect and restore forest cover (I)	No actions on the 3 year list.	Snohomish Lead entity	No	No	No	No	0	0	No	Not on the 3 year work program list. WRIA 7 has determined that this area is a lower priority than other non-forested areas. As such they are not focusing work here in the next three years.
Rural Residential Lands 9.3										
Promote forestry stewardship programs, use tax incentives	1 stewardship plan in 3-year wp; 1 – PBRS tax incentives in KC underway	Snohomish County, King County Tulalip Tribes, local govts, SCD, KCD, CLC, WSU	Yes	Yes	No	Yes – both	Yes $630k Yes $300k	2	No	These projects are underway.
9.3.1, 9.3.6, 9.3.7, 9.3.8 (R/P/I/C) Protect & enforce forest cover, restore 9.3.2 (C) Acquire land 9.3.3 (P) Technical Asst to landowners	Restore habitat in rural areas. 11 projects	Varies	Yes	Yes	No	Some	Little funding 07RPR-016 = $50K funded; -018 = $120K - $0 funded; -022 =	1 of 11	No	This rural strategy is significantly underfunded for restoration. There is one other stewardship program listed in the 3 year work program that would apply to this strategy.

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9.3.4, 9.3.5(I)							$850K – No funding; -025 $85K – No funding; -061 $200K - $0; -045- $150K - $0 funding; -046 -$2.4M - $0 funding; -049 - $425K- $0 funding -050- $2.5M- No funding; -048 - $25K - $0 funding; -051- $45,620 – No funding			
Urban Lands 9.4										
-9.4.1 (P) integrate plans, - 9.4.2 focus growth in UGAs (P/I) -9.4.3 Protect habitat (R/I), -9.4.4 Acquire and manage public lands (C),	No specific actions are found in the 3-year work program that are advancing these specific strategies. 9.4.2 is required by GMA.	King County Snohomish County Cities WA Dept of Commerce	Yes, but not as a result of the salmon plan – other drivers.	Yes, GMA requires it.		Yes, but varies	Yes, but severe cutbacks due to economy	Unknown		Although focusing growth inside UGAs is required by GMA, the protection of forest cover has not been met by existing regulatory tools. Growth pressures clear land in UGAs, even along riparian corridors and other areas important for salmon habitat.
-9.4.5 Protect and restore forest cover (P/R)	4 restoration projects underway	Adopt- a-Stream Fnd. Stillaguamish Snohomish Fisheries Enhancement Task Force	Yes	Yes	No	Some	¾ of projects are not funded. 1 is fully funded	1	**0**	These projects need funding.

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		Tulalip Tribes								
Roads and Utilities 9.5										
9.5.1, 9.5.2 (P) build roads with less impacts; -9.5.3 adopt Regional RM Guidelines (R) -9.5.4, 9.5.6; Use BMPs for utility maintenance (P) -9.5.5 site new public infrastructure away from salmon habitat (P)	No actions related to these strategies are found in the 3-year work program. May be advancing by jurisdictions on their own.	WSDOT King County Snohomish County Cities Public and Private Utility Companies	No	No	No	No	No	0	0	Many, but not all, jurisdictions voluntarily adopted the Regional Road Maintenance Guidelines. WSDOT needs to adopt. All agencies need GMA comp plan policies on this issue; include in the CFPs It does not appear that this set of strategies is being advanced by WRIA 7, but some actions may have been taken by local govts.
All Types of Uses - 10.1, 10.2										
Adopt Planning Goals (P) 10.1, 10.2	No actions in the 3-year work program	SCT, King and Snohomish Counties, all Cities	None set	No – unless agency adopts as part of GMA update	N/A	Few	No	0	No	The regional planning forums are not focused on the adoption of these policies. No one is leading this effort.
Resource Land-Based Strategies 10.3										
Land Use 10.3.1 12 Strategies:										
-10.3.1.1 thru 10.3.1.4 Land Use density strategies; (P/R)	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.1.5 Maintain forestry;	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.1.6 (R/P) No UGA expansion into floodplains	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.

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10.3.1.7; 10.3.1.10, (P/I) consider broader landscape; cumulative impacts in development;	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.1.8 protect habitat for all salmon life stages; (P/R/I)	Develop Habitat Protection Strategy	SC, KC, Tulalip Tribe	Yes	Yes	Yes	No	Yes- fully funded EPA Grant $869,090	1	No	New Project underway. This is a significant step; includes WS and reach characterizations
10.3.1.11, 10.3.1.12 (R/P) Regulate mining ops; discourage in important habitat areas	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Wetlands 10.3.2 10.3.2.1-.6 (R/P/I) protect wetlands and their functions; use DOE Guidance; adopt "no net loss" policy.	No actions in the 3-year work program	Fed, State and Local governments	No	Yes, for cities and counties planning under GMA;	No	No	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this strategy.	Unclear; according to schedule in state law. RCW 36.70A		These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.
Stream Buffers 10.3.3 10.3.3.1-3 (R) Protect riparian zones using FWCHAs and buffers; 10.3.4 Use incentives (I)	No actions in the 3-year work program	US Forest Service Tribes DOE DNR Snohomish County King County Cities in both counties	No	Yes, for cities and counties planning under GMA;	No	No from WRIA	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this strategy.	Unclear – all cities and counties must update according to schedule in state law. RCW 36.70A	No	These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.
Infrastructure in wetland/stream	No actions in the 3-year work program	All agencies	No	Yes, for cities and	No	No from	No – CAO updates are	Unclear – all cities	No	These strategies address the CAO updates that are

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buffers **10.3.4** -10.3.4.1 (P/R) Avoid riparian areas; -10.3.4.2, 10.3.4.3, 10.3.4.4 (P/R/I) Use BMPs to maintain; adopt Regional RM Guidelines		including public and private utilities All agencies		counties planning under GMA;		WRIA	a local govt requirement under GMA. WRIA is not leading this strategy.	and counties must update according to schedule in state law. RCW 36.70A		required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.
Shoreline modifications **10.3.5** 10.3.5.1 Stop bank hardening; avoid devel. in shorelines (R/P) 10.3.5.2 Allow bank stabilization only where imminent threat; 10.3.5.3 Use bioengineering where no feasible alternative exists. 10.3.5.4 Use incentives for redevelopment (I) 10.3.5.5 Use State's ISP Guidance	SMP updates are on the 3-year work program	All cities in WRIA 7, Sno Co, Snoqualmie Watershed Forum	Yes	Yes	No	?	$100,000 Yes (partial)	Unclear – all cities and counties must update according to schedule in state law.	No	These strategies address the SMP updates that are required under the SMA. It is unclear what role WRIA 7 intends to play in the SMP updates. DOE has an approval role.
10.3.5.6 Revise Corps Levy Vegetation Standards	No action in the 3-year work program	US Army Corps; PSP ?	No – but urgent action is needed due to change in USACOE standards	No	No	No	No	0	No	No one is leading this strategy for WRIA7. (PSP is advancing work in this area for the region, however).

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Floodplain alterations 10.3.6										
10.3.6.1, 10.3.6.3, 10.3.6.6 Discourage all new development in FP; and impacts from livestock (P/R)	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.6.2, 10.3.6.7 Prohibit new flood control structures; avoid culverts (R)	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.6.4 develop flood hazard reduction plans, regs. (P/R);	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.6.5 use TDR and other incentives (I)	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.3.6.8 ID and restore side channels (P/C)	MPR-306, MRP-307 Skykomish Braided Reach Project (Phase I, II)	Sno County	Yes-1	Yes	No	Yes -	$300k; $155k SRFB avail. Phase 2 = $350k, fully funded	2	No	Some projects underway in mainstem; In the Rural SBSB, opportunities for restoring side channel habitat are lacking according to WRIA 7.
Channel Migration Zone 10.3.7										
-10.3.7.1 Map and designate as critical areas (P)	No actions in the 3-year work program	Cities and Counties with CMZs	No	Yes, for cities and counties planning under GMA;	No	No from WRIA	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this	Unclear – all cities and counties must update according	No	These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
							strategy.	to schedule in state law. RCW 36.70A		
10.3.7.2 Protect and minimize impacts to CMZs (R/I)	No actions in the 3-year work program	Cities and Counties	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program. The new EPA grant to develop a habitat protection strategy may address this.
Strategies 10.3.7.3 10.3.7.4, 10.3.7.5, 10.3.7.6 –In CMZ, discourage future land uses or expansions (R/I/P)	No actions in the 3-year work program	Cities and Counties, FEMA	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program. The new EPA grant to develop a habitat protection strategy may address this.
Landslide hazard areas 10.3.8										
10.3.8.1 Identify and map LHAs; 10.3.8.2 Designate as Critical Areas to reduce mass wasting; 10.3.8.3 Prohibit new roads, clearing and grading in LHAs except where EPFs or to protect health & safety; 10.3.8.4 - When slope failures occur, use geotechnical analysis and design measures to minimize future threats or damage to unstable slopes or fish	No actions in the 3-year work program	Cities and Counties with CMZs, FEMA, DOE, DNR	No	Yes, for cities and counties planning under GMA;	No	No from WRIA	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this strategy.	Unclear – all cities and counties must update according to schedule in state law. RCW 36.70A	No	These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
habitat.										
Clearing and Grading 10.3.9										
10.3.9.1 Adopt regulations to limit impacts of sediment-laden runoff; 10.3.9.3 use low volume grading trigger for regulation	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
10.3.9.2 Promote farm plans that retain forest cover	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Counties and Conservation Districts may be doing this independently.
10.3.9.4 Promote 65/10 for new clearing (non-ag) in rural areas;	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	1	No	No one is leading this effort at the WRIA level. King County is only one actively pursuing this and it has been litigated and found to be a regulatory taking as applied in their CAO.
10.3.9.5 Preserve whole non-merchantable trees when clearing for land development for late use as LWD.	No actions in the 3-year work program	Counties FEMA DOE KCD, SCD	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?
Retention of LWD 10.3.10										
10.3.10.1 Retain LWD in aquatic habitats and adjacent banks except where immediate threat to public safety and critical infrastructure, primary residences; businesses (including farms)	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?

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10.3.10.2 If removed, return LWD to the system	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?
10.3.10.3 Design LWD placements to ensure it does not become a hazard	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public Feedback opposes this policy for its impact on salmon habitat. WRIA 7 is evaluating.
10.3.10.4 Prohibit salvage logging in aquatic areas.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?
Stormwater 10.3.11										
10.3.11.1 Adopt DOES Stormwater Manual for W.WA or equivalent;	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
10.3.11.2 Use LID to manage stormwater from new or re-development	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?
10.3.11.3 Implement design standards and land use incentives to minimize impervious surfaces	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
10.3.11.4 Inventory and upgrade stormwater detention/retention	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
facilities as needed to solve flow problems.		10,000 in pop. DOE								regulator and issues the NPDES permits.
10.3.11.5 for maintenance and development activities, develop ESC expertise and apply it through BMPs and SOPs (e.g., Use Regional Road Maintenance Program)	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
10.3.11.6 Use various tools to limit impervious surfaces (regulatory, other)	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
Water Quality 10.3.12										
10.3.12.1 Identify the WQ and hydrologic process issues within each jurisdiction	Develop Habitat Protection Strategy	SC, KC, Tulalip Tribe	Yes	Yes	Yes	No	Yes- fully funded EPA Grant $869,090	1	No	New Project underway. This is a significant step; includes WS and reach characterizations
10.3.12.2 Protect and promote healthy riparian areas to reduce temp., increase shade and reduce siltation	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Public works agencies and developers may be doing this independently?
10.3.12.3 protect and promote CARA recharge	No actions in the 3-year work program	Cities and Counties with CMZs, FEMA, DOE, DNR	No	Yes, for cities and counties planning under GMA;	No	No from WRIA	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this strategy.	Unclear – all cities and counties must update according to	No	These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
								schedule in state law. RCW 36.70A		
10.3.12.4 classify and map CARAs using BAS	No actions in the 3-year work program	Cities and Counties with CMZs, FEMA, DOE, DNR	No	Yes, for cities and counties planning under GMA;	No	No from WRIA	No – CAO updates are a local govt requirement under GMA. WRIA is not leading this strategy.	Unclear – all cities and counties must update according to schedule in state law. RCW 36.70A	No	These strategies address the CAO updates that are required under GMA. No one is leading this within WRIA 7, but DOE and Commerce have roles.
10.3.12.5 Develop strategies to reduce pollution sources affecting salmon	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
10.3.12.6 Develop local and tribal ordinances to protect WQ	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop. DOE	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.
10.3.12.7 consider new technologies and planning techniques for wastewater and stormwater treatment	NC-004; Part of NPDES Permit implementation for phase I and II cities and counties.	All cities and counties over 10,000 in pop.	Not rated	Yes	No	Yes	No funding specified;	Varies by JDN.	No	Federal regulatory mandate under Clean Water Act. The WRIA is not leading this policy goal; DOE is the regulator and issues the NPDES permits.

Chinook Salmon Recovery Plan Element SNOHOMISH RIVER	Key Actions to Implement Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy plan	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
		DOE								
10.3.12.8 Address immediate and long-term WQ effects of development when updating Comp. Plan, regulations or issuing permits	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
10.3.12.9 participate in regional WQ monitoring efforts	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
10.3.12.10 Discourage pesticide/herbicide use in riparian areas and wetland buffers.	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
10.3.12.11 Require WQ monitoring when development projects involve wetland and stream modifications	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
Habitat-forming Processes 10.3.13										
10.3.13.1 maintain or restore the natural sources, storage, deliver and routing of surface and groundwater, sediments and nutrients.	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
10.3.13.2 Discourage removal of gravel from streambeds.	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level. Cities and counties may be doing this independently.
Additional Regulatory and Programmatic Ideas – 10.4										
10.4.1 Direct mitigation towards basin needs	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level.

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10.4.2 Support Noxious Weed Removal	No actions in the 3-year work program	Local governments	No	No	No	No	No	0	No	No one is leading this effort at the WRIA level.
Stewardship and Implementation Capacity 10.5										
10.5.1 Conduct Public Outreach and Education	6 Programs on the list	Varies Stilly-Snohomish FEG, Stewardship Partners, Eco Net Participants, CLC, Tulalip Tribe, WSU Extension, Snohomish County, King County	Yes	Yes	No	Some	3 of 6 programs have funding. $1.6M; $240K gap	3 of 6	No	These programs appear to be underway. They need additional funding for three of the programs.
10.5.2 Build capacity and support for implementation	3 programs underway	Tulalip Tribes, WSU Extension, PSP	Yes	Yes	No	No, except for PSP	1 of 3	1	No	These programs include the Tulalip Outrach Specialist, Shore Stewards Program, and the Puget Sound Starts Here Campaign. Only the PSP program is advancing.
10.5.3 Provide technical assist and encourage stewardship	2 programs: 07-NC-002 07-NC-005	King County, Snohomish County, Partnership for Rural King County	Yes	Yes	No	Yes	$1.5M = Total budget for 2 programs. One program fully funded at $630K. Gap is $900K.	1	No	The targeted stewardship model program needs funding. Budget is $900K
Incentives and Other Innovative Approaches 10.6										
10.6.1 Develop or continue programs	PBRS Incentive Program	King County	Yes	Yes	No	Yes	Yes. King County	1	No	Program underway. Could be expanded to Snohomish

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that allow tax reductions for riparian and forest protection/restoration							$300K			County.
10.6.2 Encourage use of TDR programs to protect forest cover	TDR/PDR Project	CLC, King County, Snohomish County	Yes	Yes	No	No	No	0	No	No one has funded this program and it is not advancing at this time.
10.6.3 Develop fee reduction or discount program that promotes forest cover protection	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.6.4 Develop streamlined permit fee for SFR development in rural residents using stewardship programs	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.6.5 Develop Ag incentives for landowners to protect riparian areas, forest cover	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program. Snohomish County is funding with EPA funds a program to analyze salmon recovery and AG issues, but it is not part of the 3-year work program.
10.6.6 Provide financial incentives and technical asst. for stream bank stabilization	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.6.7 Develop incentives to reduce impervious surfaces	No actions in the 3-year work program.	Unknown	No	No	No	No	No	0	No	Jurisdictions are implementing the NPDS program that may include some elements of LID, but no one is leading this effort. No projects on the 3-year work program.
10.6.8 Develop	No actions in the 3-year	Unknown	No	No	No	No	No	0	No	No one is leading this effort.

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incentives to promote water conservation	work program									No projects on the 3-year work program.
10.6.9 Develop programs to maximize benefits to the entire basin.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	It is unclear what this would entail but no one is leading this effort. No projects on the 3-year work program.
10.7 Compliance Efforts – Code Enforcement										
10.7.1 Establish a violation phone line	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.7.2 Fund staff for field inspections, technical assistance and enforcement staff to ensure widespread compliance.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.7.3 Participate in interagency coordination	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.7.4 Consider voluntary approaches to achieving compliance	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
10.7.5 Develop performance measures for enforcement activities to track progress.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Sub-Basin Strategies by Recovery Area										
Nearshore Strategies – Planning and Policy										
Continue protecting eelgrass beds	Shoreline Master Program Updates	Cities and counties	Yes	Yes	No	Varies	Some funding. Each update ranges in cost from $500K to $1M.	Unknown	No	The SMA updates are the only regulatory tools mentioned in the 3 year work program. There are other regulatory programs that may protect eel grass beds. It is unclear what role WRIA 7 plays in advocating

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										for such protections.
Develop a strategy to protect and restore shoreline at Potlatch	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Develop a strategy to protect and restore the shoreline habitat at Tulalip Tulare Beach, Sunny Shores, and Spee Bi Dah	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Develop a protection strategy for the Hat Island shorelines.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Develop a habitat protection and restoration strategy for urban shorelines in Everett and Mukilteo	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Develop a strategy to reduce septic issues along shoreline communities.	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Continue and expand coordination, mitigation & restoration strategies	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Coordinate with Sound Transit	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Continue to support the Marine Resources Committee	Not on the list but the MRC is supported by Snohomish County and King County (and possibly others).	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Develop incentives for bulkheading alternatives	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.
Provide technical	See above.									

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assistance & stewardship information to homeowners										
Maintain strong shoreline regulations; Encourage or require softer forms of shoreline protection.	SMP updates are on the 3-year work program	All cities in WRIA 7, Sno Co, Snoqualmie Watershed Forum	Yes	Yes	No	?	$100,000 Yes (partial)	Unclear – all cities and counties must update according to schedule in state law.	No	These strategies address the SMP updates that are required under the SMA. It is unclear what role WRIA 7 intends to play in the SMP updates. DOE has an approval role.
Capital Restoration by Recovery Area										
Nearshore Restoration	7 capital restoration projects	Tulalip Tribes, Mukilteo, WSF, Port of Everett, WDFW, Sno Co, MRC	Yes – 1	Yes	No	Some	Total est. cost = $27.423 million; Funding avail for portion of 1 project only @ $150,000	1 of 7	No	These are very high priority projects, and they are severely underfunded. Gap is $27,273,000.
Estuary Restoration	10 capital restoration projects	Sno Co, City of Everett, Port of Everett, Tulalip Tribes, WDFW, KC DNRP	Yes – very high priority	Yes	No	Some	Total est. cost = $29.773 million; Funding avail for 5 projects (some partial funding only) @ $16.135m	3 of 10 projects are in progress (4th may be partially underway)	No	High priority projects; severely underfunded. Gap is $32.132 million
Mainstem Rivers Restoration (Primary and	45 capital restoration and/or acquisition projects	Various	Yes	Yes	No	Some	Total est. cost =	13 of 45 projects	No	Numerous projects are without funding. Gap is $92.372million.*

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Secondary goals)							$96.065 million; Funding avail for13 projects (some partial funding only) @ $3.693 million	are in progress		*Note: 1 project in this category has a budget of $62.2million and is unfunded. Without that project, the total funding gap is still over $30million.
Rural Streams Restoration	11 capital restoration projects	Various	Yes	Yes	No	Some	Total est. cost = $7.770 million; No funds available	0 of 11 projects	No	No funding is available for any of these projects. Gap is $7.7 million
Urban Streams Restoration	4 capital restoration projects	Various	Yes	Yes	No	Some	Total est. cost = $1.621 million Funding available for 1 project @$186,000.	1 of 4 projects	No	Only 1 project is funded for this group. Gap is $1.435 million.
Headwaters Protection and Restoration	8 capital restoration projects	Various	Yes	Yes	No	Some	Total est. cost = $3.913 million; Partial funds avail for 3 projects @$1.714m	3 of 8	No	Only 3 projects are partially funded; Gap is $2.199 million
Monitoring and Adaptive Management	No actions in the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this effort. No projects on the 3-year work program.

LAKE WASHINGTON, CEDAR RIVER, LAKE SAMMAMISH - WRIA 8

PROFILE: The Lake Washington/Cedar/Sammamish Watershed is the land area in which rainwater drains from the crest of the Cascade Mountain range near Stampede Pass, into Lake Washington and out through Lake Union and the Hiram Chittenden Locks into Puget Sound. The watershed includes the Cedar River and its tributaries, the Sammamish River and its tributaries, streams draining into Lake Washington and Lake Sammamish, and streams draining directly into Puget Sound between Elliott Bay and Mukilteo. The area contains two major river systems (the Cedar and the Sammamish rivers) and three large lakes. Lake Washington has 80 miles of shoreline (including 30 shoreline miles around Mercer Island). It is the second largest natural lake in the State. The watershed is highly altered from its natural state with urban development (including the addition of the Chittenden Locks built in 1916 by the US Army Corps of Engineers, connecting Lake Union to Puget Sound, which dropped the level of Lake Washington by nine feet, draining wetlands along much of the shoreline, and diverting flows from the Black River into the Lake. The watershed has the highest human population of any WRIA in the State. There are two Chinook salmon populations supported by this Watershed. They include the Cedar River population and the Sammamish population. The Cedar River is the largest tributary to Lake Washington and drains an elongated basin of 188 square miles that extends from the crest of the Cascade Mountains to the southern shore of Lake Washington in the City of Renton. The upper two-thirds of the subarea is owned and managed by the City of Seattle and supplies drinking water to two-thirds of Seattle and its regional customers. The Cedar River Municipal Watershed is almost entirely coniferous forest, and its management is governed by the Cedar River Watershed Habitat Conservation Plan. The lower third of the Cedar River subarea below the Landsburg Diversion Dam includes 21 miles of mainstem river and 15 tributaries, and drains a 66-square-mile area. The lower Cedar River mainstem and three main fish-bearing tributaries provide the majority of the current spawning habitat for chinook and sockeye salmon and steelhead trout in the WRIA 8 system as well as significant spawning and rearing habitat for coho salmon and cutthroat trout. The three main tributaries for Chinook are: Lower Rock Creek, Peterson Creek, and Taylor Creek. Most of the lower Cedar River subarea is rural and forested.

Major Industries: Software, Information and Computer technology, commercial aerospace, global health and life sciences, commercial forestry, manufacturing, marine technology, higher education, commercial fishing, communication technology, green energy technology, retail and residential services.

Important Groups: Town of Beaux Arts Village, Cities of Bellevue, Bothell, Clyde Hill, Edmonds, Issaquah, Kenmore, Kent, Kirkland, Lake Forest Park, Maple Valley, Medina, Mercer Island, Mill Creek, Mountlake Terrace, Mukilteo Newcastle, Redmond, Renton, Seattle, Shoreline, Woodinville, King and Snohomish Counties, and the Towns of Hunts Point and Yarrow Point, Boeing Company, Cedar River Council, Friends of the Issaquah Salmon Hatchery, King Conservation District, Mid-Sound Fisheries Enhancement Group, Sustainable Fisheries Foundation, Sno-King Watershed Council, Water Tenders, Trout Unlimited, US Army Corps of Engineers, Washington State Departments of Ecology, Fish and Wildlife, and Natural Resources, Friends of the Cedar River Watershed, Mountains to Sound Greenway

Limiting Factors: Altered hydrology, loss of floodplain connectivity, lack of riparian vegetation, disrupted sediment processes, loss of channel and shoreline complexity, fish passage barriers, degraded water and sediment quality, planned population increases.

Implementation Assessment - Summary of Key Findings

The original salmon Recovery Plan. The WRIA 8 Plan contains more than 1,200 comprehensive actions, developed through a collaborative, bottom-up process involving extensive participation of local stakeholders, jurisdiction staff, environmental and business representatives, and project experts. Of these 1,200 actions, the highest priority recommendations are grouped into the Plan's 10-year "Start List," which provides focus during the initial stages of plan implementation. The Plan's actions are grouped into three categories of actions:

• **Site-specific habitat protection and restoration activities** protect or restore a specific area or parcel through acquisition or easements and through restoration projects such as levee setbacks, re-vegetation, addition of large wood, and removal of barriers to fish passage.

• **Land use and planning recommendations** focus on accommodating future growth while minimizing impacts to salmon habitat. Included are incentive programs, regulations, best management practices, low-impact development recommendations, enforcement actions, and policies.

• **Public outreach and education actions** support the land use and site specific actions or encourage behavior that benefits habitat health, such as through workshops for shoreline landowners, a regional marketing campaign, and promotion of stewardship by businesses and community groups.

From this list, 162 of the highest priority projects were chosen for implementation during the first 10 years of the Plan (the "Start List"). WRIA 8 is one of the few watersheds that have published its accomplishments. The most recent report (2007) highlights the accomplishment of both capital and non-capital efforts:

Completed Start List projects 2006-2007

Cedar River
• Cedar Rapids—Acquired approximately 15 acres to provide restoration opportunities on the Cedar River.
• Lions Club Side-Channel Restoration—Restored a historic side channel (~ 800 feet) and associated floodplain to provide Chinook rearing habitat.
• Lower Taylor Creek Floodplain Restoration—Relocated 800 feet of stream channel away from a road, restored wetlands and off-channel habitat, placed large wood, and restored riparian vegetation.

Migratory Areas
• Rainier Beach Lake Park, Lake Washington—removed a marina and bulkhead, regraded the shoreline, removed invasive non-native plants, and added native vegetation along the shoreline.
• Martha Washington Park, Lake Washington—Removed riprap and rock armoring, regraded and scalloped the shoreline to enhance habitat diversity, and planted native vegetation.
• Added strobe lights at H.M. Chittenden Locks to deter smolts and prevent entrainment in the locks.

North Lake Washington
• Little Bear Creek Headwater Forest—61 acres of mature second-growth forest were protected through a mix of conservation easements and acquisition. Acquisition of an additional 38 acres is underway.
• Wildcliff Shores Riparian Wetlands Enhancement—Restored native vegetation across from Swamp Creek.
• Zacusse Creek daylighting—Removed a culvert containing the lower 150 feet of the creek and replaced with an open channel (project primarily benefits Kokanee salmon).

Issaquah
• Lower Issaquah Creek—Acquired Juniper Acres and "Guano" Acres, the largest undeveloped parcel within the City of Issaquah. Both parcels provide excellent restoration opportunities.
• Log Cabin Reach, Issaquah Creek—Acquired 118 acres of high quality habitat.
• Sammamish State Park Management Plan—Rewrote plan to provide an ecosystem perspective and reduce impacts associated with human use. Includes protection of floodplain and riparian processes.
• Fish Passage Improvement in Taylor Mountain Park—Replaced the culvert with a design allowing better fish passage during low flows.

Other projects

Local jurisdictions and others are also engaged in a wide variety of habitat protection and restoration activities. These projects are from the comprehensive list of projects in the WRIA 8 Plan or are consistent with the WRIA 8 Plan, but are not on the Start List. Highlights include:

- Replaced the culvert on Penny Creek at Mill Creek Road (City of Mill Creek).
- Acquired 17 acres to connect two existing preserves on Lake Sammamish (City of Sammamish).
- Restored Juanita Creek in Juanita Beach Park to reduce fine sediment delivery to Lake Washington and improve stream habitat (City of
- Kirkland).
- Restored Mercer Slough riparian area, restored wetlands in Kelsey Creek, stabilized eroding stream banks along 1,300 linear feet of Coal Creek using
- large wood, and installed large wood and native vegetation along another 1,000 feet of Coal Creek (City of Bellevue).
- Six riparian enhancement projects were initiated on North and Swamp Creeks, including two volunteer riparian vegetation restoration projects in Native Growth Protection Areas (Snohomish County).
- Maintained the Wetherill Nature Preserve to provide habitat for terrestrial and aquatic species (Towns of Yarrow Point and Hunts Point).
- Protected the headwaters of Cutthroat Creek (approximately 14 acres), a tributary to Little Bear Creek (in progress—Snohomish County).
- Planted vegetation, acquired three large parcels along Little Bear Creek for preservation as open space (City of Woodinville).

Project highlights from other groups

In addition to local governments, several other groups have been carrying out habitat protection and restoration projects that benefit salmon recovery. For example, the Adopt-a-Stream Foundation restored riparian vegetation and natural floodplain processes on sections of Little Bear, Lyon, McAleer, and North Creeks. Friends of the Cedar River Watershed volunteers planted trees and removed invasive non-native vegetation along the Cedar River and Taylor Creek. The Issaquah Basin Action Team sponsored and organized a grant proposal to the Washington Department of Ecology to control two highly invasive weeds: policeman's helmet and Japanese knotweed.

WRIA 8 Survey Results for Land Use and Planning

Highlights from the WRIA 8 survey regarding land use and planning recommendations include:

- Seven local jurisdictions already have programs promoting low-impact development, and eight more have proposed programs for 2008.
- Fifteen jurisdictions offer educational materials addressing water quality, and three others plan to do so in 2008.
- All respondents have existing stormwater management regulations or programs underway, and all either have updated or plan to update their activities to bring them up to the newest standards required by the Washington Department of Ecology.
- Groundwater protection efforts are underway in ten jurisdictions, including designation of critical aquifer recharge areas.
- Nineteen jurisdictions have updated their Critical Areas or Sensitive Areas Ordinances in the past four years, as required by the state Growth Management Act. Updates are required to ensure that the latest scientific knowledge ("Best Available Science") is incorporated in local regulations.
- Twelve jurisdictions have programs promoting water conservation.
- Nine jurisdictions offer incentives (for example, reduced fees or taxes) to property owners who protect or restore ecological functions on their property.

To assess progress made during 2008 in implementing programmatic recommendations in the Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan, a survey was administered to jurisdictions in the watershed who are parties to the interlocal agreement to implement the Plan (other WRIA 8 partners such as non-profit organizations and state or federal agencies were not surveyed). The survey found a high rate of implementation for the following programmatic actions which were ranked as being of high importance by a WRIA 8 staff group:

- Forest Cover/Riparian Buffer Education
- Water Quality Education

- Promoting Stormwater Best Management Practices
- Critical Areas Ordinances
- Shoreline Master Plan Updates
- Tree Protection Regulations
- Stormwater Regulations
- Regulatory Flexibility to Promote Habitat Protection/Restoration

The following programmatic actions were found to have lower levels of implementation and were ranked as being of high or medium importance to salmon recovery. These Plan recommendations should be discussed by the WRIA 8 Implementation Committee and the WRIA 8 Salmon Recovery Council to identify ways to increase their level of implementation:

- Outreach Regarding the Benefits of Large Wood
- Education Programs for Landscaping Designers/Contractors on Sustainable Design
- Programs to Address Illegal Water Withdrawals
- Incentives to Protect/Restore Ecological Function
- Outreach to Property Owners to Protect Forest Cover/Habitat
- Promotion of Low Impact Development
- Natural Yard Care Program

OUTREACH AND EDUCATION EFFORTS

The WRIA 8 Plan calls for a wide range of public outreach and education activities, including workshops for lakeshore property owners, tours highlighting environmentally friendly designs, campaigns using newsletters or brochures, and promotion of stewardship or best management practices. WRIA 8 partners have made significant progress in these areas, both cooperatively and as individual jurisdictions. A summary of those efforts includes:

• Salmon SEEson—In 2007, the WRIA 8 Communications Committee launched a campaign to promote fall salmon viewing opportunities around the Lake Washington/Cedar/Sammamish watershed through press releases, posters, and the WRIA 8 website. WRIA 8 worked with existing public salmon viewing programs such as Cedar River Salmon Journey and the Piper's Creek docents.. The campaign invited the public to view salmon from September through December at seven locations to increase awareness and support for salmon conservation. Plans are to continue this as an annual fall campaign. 4th annual Salmon SEEson is happening this fall.
• The King County Salmon Watcher salmon monitoring program (2007) used 121 volunteers to survey 125 sites on 49 streams in WRIA 8. Salmon watchers collect weekly information from established sites along WRIA 8 streams. Because volunteers collect the data in this program, agencies can gather more information from far more locations than would otherwise be possible. The Salmon Watcher program has been ongoing since 1996.
• The Seattle Aquarium Beach Naturalists Program reported 10,461 public contacts on WRIA 8 shorelines in 2007, where they engage the public on nearshore issues. The 2007 program had a salmon-in-the-nearshore theme, which included a salmon training evening for all volunteer naturalists, and salmon talking points based on beach group discussions after salmon lectures. The program has been going for about 10 years.
• Several WRIA 8 jurisdictions are actively participating in an outreach effort focused on stormwater issues (as part of their NPDES Permit Compliance)—STORM, or Stormwater Outreach for Regional Municipalities—and this group plans to focus a portion of its energy on Lake Washington, Lake Sammamish, and the Cedar River. There have been outreach efforts in the WRIA 8 watershed since 2004 to encourage shoreline restoration on private property to benefit juvenile Chinook salmon. In 2004, WRIA 8 joined with six local jurisdictions to conduct workshops for lakeshore property owners. Three studies were conducted to in 2007-2008 to identify barriers to "green shorelines" and meaningful incentives. In 2008 a Green Shorelines Guidebook was developed by the City of Seattle and the Green Shorelines Steering Committee was formed. In 2009, the steering committee produced a successful series of workshops engaging a unique cadre of stakeholders: property owners, local, state and federal

regulators, shoreline design and construction companies, and non-profit organizations. A Green Shorelines website was developed in 2010 and two attractive mailers were sent to lakeshore property owners to encourage them to request a copy of the guidebook and go to the website.

For 2007[14], the watershed reported:

- 80% currently promote stormwater best management practices.
- 71% either currently promote low impact development or plan to do so in 2008.
- Over 50% have programs in place to encourage commercial car washes or offer car wash kits.
- Approximately 50% run a Natural Yard Care program or have one proposed for 2008. King County also coordinates a large Natural Yard Care program, in which five WRIA 8 jurisdictions participate.
- Nearly 70% currently hold volunteer events to raise awareness about forest cover and/or the importance of riparian vegetation.

More than 100 projects to restore or protect salmon habitat have been completed in the last decade, and fully half the projects on the 10-year Start List are expected to begin within the first five years of implementation. There is a strong commitment among local governments and community groups to take the actions necessary to implement the plan. Scientific monitoring reports positive (though preliminary) trends in adult salmon returning to spawn, survival of young fish, and productivity. Local governments are making progress on land use and planning elements of the Plan, and important education and outreach efforts are underway.

Challenges

Like all of the watersheds in Puget Sound, WRIA 8 has experienced challenges in beginning its Recovery Plan implementation. Their 2007 report concluded:

Implementing all elements of the Plan. The WRIA 8 staff noted that restoring habitat alone will not be sufficient to recover salmon. They believe that at the governmental level, land-use decisions the region is making today, along with the manner in which regulations are enforced will have an equal or greater impact on the future of Chinook in their watershed. They find that public education and outreach can be powerful tools to teach people how their actions affect the environment. Citizens and community groups will need to be partners in finding ways for salmon and people to live together.

Monitoring. Over time, monitoring and scientific research will be essential to determine whether the actions being taken are improving habitat and salmon survival or if additional or different actions are needed. Tracking progress, checking effectiveness of actions, and making needed changes in strategy are all part of adaptively managing salmon recovery efforts for the Lake Washington/Cedar/ Sammamish watershed, and the Watershed needs additional staff and support to engage in this work.

Funding. Long-term, stable funding sources are needed for salmon recovery efforts and monitoring. Although King Conservation District funds have doubled, they are the subject of a pending lawsuit, and other important funding sources have declined or have not materialized. Meeting the funding goals set forth in the WRIA 8 Plan will require increased effort to find new sources of funding as well as the continued strategic use of those sources they rely upon today.

In response to the 3-year work program update question as to whether they believe they are on pace to achieve their 10-year goals, WRIA 8 did not offer an opinion, stating instead that they intend to hold a workshop in Fall 2010 to determine the 5-year status of implementation. In terms of their funding status, their current (2010) 3-Year Work Program lists:

- **50 Capital projects** (mainly habitat restoration and acquisitions for protection or restoration) with a total cost of **$76.791 million**. The funding shown on the list describes anticipated costs, but does not state whether funds are available with any certainty. The WRIA is holding a Summit in December, 2010 to determine the status of their program efforts, including funding, which should tell them more accurately the status of their efforts and funding. As to the 19 capital projects listed

[14] Updated information from the 2008 Survey was not available at the time that this report was written.

with no funding (and 9 of those have no identified budgets) for an identified shortage of $8.490 million. Their PSAR allocation for the 2009-2011 biennium is 5.4% of the total allocation at $1.796 million.

- **14 Non-capital programs and projects** (including habitat protection through regulations, BMPs and incentive programs, outreach and education, H-integration work, monitoring, salmon recovery coordination and lead entity support), with a **total cost estimated at $13.377 million**. They have secured funding for all but $150,000 of their needed funding for non-capital programs.

As noted above, WRIA 8 has not yet determined whether they are on pace toward achieving their 10 year goals. However, staff suspects that they may not be on track. The work that they will perform for the December Summit should answer this question. In the meantime, **what do they need to support their program?**

Funding. WRIA 8 is seeking support from NMFS and the PSP to create and implement a funding strategy, especially for large, cross-jurisdictional projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts).

Staff Capacity. With the severe downturns in local government revenues, particularly for King County, staff has been cut for the salmon recovery program. WRIA 8 needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward. Specifically, they need:

- 1.0 FTE – Lead Entity Coordinator (with stable funding) to lead the effort and coordinate among their partners and across the region
- 8-10 FTE for Public Education and Outreach, Marketing, Directed outreach to landowners, maintenance of the Habitat Work Schedule.
- 1.0 FTE for Programmatic Habitat projects
- 2.0 FTE for Assessment and Adaptive Management of their Plan
- 1.0 FTE for clerical support for the entire program.

Prioritization, Sequencing and H-Integration. WRIA 8 needs funding and support to continue working on H-integration. They are seeking state leadership and facilitation of H-integration issues.

Monitoring and Adaptive Management. As they stated in their 2007 report, WRIA 8 needs continued support for their monitoring efforts and seeks to expand it to ensure that habitat status and trends and stock VSP goals are being met. Recent monitoring successes include: With federal grant channeled through PSP, WRIA 8 is currently updating land cover change analysis to include 2006 LandSat forest cover info, impervious cover, and 2005-2009 riparian buffer change analysis; secured $1M EPA grant (with 30% WRIA match) to continue Wadeable Streams Status and Trends monitoring in 50 randomly selected stream reaches (2009-2013); continued annual Chinook spawning and out-migrant surveys with local grant funding and local-state partnerships (10+ consecutive years of data collected). They still need help with effectiveness monitoring, especially for programmatic actions such as the effectiveness of land use regulations and incentive programs to protect habitat.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: LAKE WASHINGTON/CEDAR/SAMMAMISH[15]

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
HABITAT STRATEGY										
Cedar River Population										
Tier 1 subareas: Mainstem- Lower and Middle Cedar River)										
A. Protect and restore forest cover and soil infiltrative capacity, and minimize increases in impervious surfaces.										
Basin Wide: Enlist help of builders practicing sustainable development to promote benefits of forest cover in protecting water quality. (C706, C707, C720, C722)	Programmatic actions are summarized at a high level in the 3 year work program list. This recommendation is not listed individually. Implementation of programmatic actions has been done through surveying partners.	Unknown	No	No	No	None	No	0	No	Not being tracked. WRIA 8 programmatic survey for 2008 found a high level of implementation for Forest Cover/Riparian Buffer Education.
Employ basin stewards to work with property owners and land trusts to protect habitat on private lands using BMPs.		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found a medium level of implementation for outreach to property owners. Many jurisdictions have basin stewards, but many positions have been cut due to lack of funding. Highlighted as needing more implementation.

[15] Staff Note from WRIA 8: The 3-Year List summarizes the many programmatic actions in the WRIA 8 Plan into six large categories and gives a few examples of those actions. It is NOT a good way to evaluate implementation of programmatic actions in our watershed. A better, but imperfect way that we are starting to track programmatic actions is by the two surveys we have done of our 27 jurisdictions and other partners. The survey also summarizes the recommendations in the Plan for a more manageable survey. With this report, we are sharing a copy of the latest survey with NOAA. The WRIA 8 Plan gave very high level, ball park estimates for recommendations in the WRIA 8 Plan which are in the 3 Year List for illustrative purposes. That does not mean that this funding is in hand.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
Encourage neighborhood and community protection associations to foster the ethic of voluntary stewardship and community relationships. (C703, C716, C720, C721)	Outreach and Education Programs	Multiple	Yes-1	Yes	No	Yes	Yes $5.715 m – ongoing	At least 7	No	Not being tracked. WRIA 8 programmatic survey for 2008 found a medium level of implementation for Stewardship Events. Several NGOs are actively doing stewardship events in watershed.
Within Urban Growth Area: Allocate population growth to Renton and annexation areas consistent with GMA to protect rural resources.	Programmatic actions are summarized at a high level in the 3 year work program list. This recommendation is not listed individually. Implementation of programmatic actions has been done through surveying partners..	Unknown	No	No	No	None	No	0	No	Covered by GMA. Not being tracked in WRIA 8 yet, but will be for the WRIA 8 Summit.
Manage growth to minimize impacts on forest cover, water quality, and flows. (C1)	Programmatic actions are summarized at a high level in the 3 year work program list. This recommendation is not listed individually. Implementation of programmatic actions has been done through surveying partners.	Unknown	No	No	No	None	No	0	No	Covered by GMA. Not being tracked in WRIA 8 yet, but will be for the WRIA 8 Summit. Will report on trends in forest cover and water quality.
Protect remaining trees and encourage reforestation through street tree and urban forestry programs, tree protection regulations, landscaping incentives, and redevelopment. (C3)	Programmatic actions are summarized at a high level in the 3 year work program list. This recommendation is not listed individually. Implementation of programmatic actions has been done through	Unknown	No	No	No	None	No	0	No	WRIA 8 Survey found high implementation for Forest Cover/Riparian Buffer Education and for Tree Protection Ordinances.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
	surveying partners.									
Outside UGAs										
Strictly enforce CAO clearing limits outside UGAs.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	CAOs have been updated. Enforcement of CAO not being tracked. Will report on trends in forest cover at WRIA 8 Summit.
Acquire land for protection;										See project implementation lists and completed capital projects on 3 Year List. Acquisitions will be mapped for WRIA 8 Summit.
Create landowner incentives.	Incentives Programs	Multiple stakeholders and WRIA 8	Yes-1	Yes	No	Yes	Yes $798k	Multiple	n/a	WRIA 8 Survey found a medium level of implementation for incentives. Concern about local funding cuts to existing programs like King County's PBRS tax incentives.
Provide forest stewardship plans. (C2)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 Survey found high implementation for Forest Cover/Riparian Buffer Education. Local funding for forest stewardship plans threatened by budget shortfalls.
B. Protect and restore riparian vegetation to provide sources of large woody debris that can contribute to creation of pools.										
Basinwide Offer regulatory flexibility & incentives to encourage property owners to restore riparian function & remove impervious areas during redevelopment. (C6, C7)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 Survey found high implementation for regulatory flexibility, but it is not well defined and effectiveness is not known.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
Expand outreach to streamside property owners about shoreline landscape design, maintenance and stream bank armoring alternatives C701,C702 C709 C714, C716 C722	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found a medium level of implementation for outreach to property owners. Many jurisdictions have basin stewards, but many positions have been cut due to lack of funding. Highlighted as needing more implementation. Snohomish County has a very effective workshop series. WRIA 8 held a workshop on how to improve communication with streamside property owners in 2009.
Offer educational opportunities to landscape designers/ contractors on riparian design/ installation, alternatives to invasive species and use of compost. (C705, C706, C707)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found low implementation. Some good programs like Seattle's Soils for Salmon.
Encourage neighborhood garden tours of salmon-friendly gardens to help residents visualize alternatives to traditional, less eco-friendly landscape treatments.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found low implementation, but not a high priority. Two demonstration gardens funded in WRIA 8 with KCD funds, one on the Sammamish and one on Issaquah Creek.,
Encourage more sustainable construction through recognition	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 not tracking.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
awards. Track demand for green building. (C722, C707)										
Inside UGAs: Protect remaining riparian vegetation; encourage replanting of riparian vegetation through incentives, and strictly enforce aquatic buffers and limit variances where vegetation still exists in critical areas. (C5)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 not tracking enforcement of regulations. WRIA 8 survey found CAOs have been updated, effectiveness of regulations not known.
Restore riparian vegetation where possible in Reach 2. (C204)	No projects are on the 3 year work program list.	Renton	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Emphasize restoration such as conifer under-planting and long-term maintenance on publicly-owned properties. (C213, C209)	C213 on 3 year work program list.	King County/ Renton	Yes – 1	Yes	No	Yes	Yes $200K in 3 year list	1	No	Project is underway.
Outside Urban Growth Area: Protect intact riparian buffers in Tier 1 and Tier 2 subareas through strict enforcement of buffer regulations, and offer incentives to restore degraded habitat buffers	No projects are on the 3 year work program list.	King County	No	No	No	None	Yes, partially. Seattle, FCRW and CLC received 4 year EPA grant. King County has received KCD, other	0	No	CAOs have been updated. Enforcement of CAO not being tracked. King County, Seattle, Friends of the Cedar River Watershed, CLC are working with property owners in lower Cedar to remove Japanese knotweed and restore riparian vegetation.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
							grants.			
Support King County forestry and agriculture programs including technical and financial assistance to landowners.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 is not tracking. King County's forestry programs still exist, but could face local budget cuts.
Protect and restore riparian buffers on private property through enforcement of regulations and incentives. (C5, C7)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 is not tracking enforcement of regulations. Some incentives exist, but effectiveness not known and vulnerable to funding cuts.
In particular, protect riparian buffer behind Scott-Indian Grove levee in Reach 8. (C229)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
C. Protect and Restore floodplain connectivity. Protect channel complexity and add large woody debris to create pools and riffles.										
Basinwide: Limit new development in floodplains and channel migration zones; develop and apply standards which minimize impacts to salmon. State and local transportation plans should minimize new road crossings. (C17, C18)		Unknown	No	No	No	None	No	0	No	WRIA 8 is not tracking enforcement of regulations. FEMA Bi-Op will require review of the regulations.
Perform a demonstration project in publicly accessible area with riverfront property owner(s) willing to replace bulkheads, levees, or stream bank armoring with more ecologically friendly design. (C715)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Conduct study to identify	LWD Over Landsburg	City of	Yes – 1	Yes	No	No	No	0	No	No project costs stated.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
locations where large woody debris should be added to Cedar mainstem and to explore feasibility of passing large woody debris over the Landsburg dam. (C601, C260)	Dam	Seattle, King County					Feasibility Stage			
Increase public awareness about the value of large woody debris and native vegetation for flood protection, salmon habitat, and healthy streams. (C716)	No projects are on the 3 year work program list.	King County	No	No	No	None	No	0	No	WRIA 8 Survey found low level of implementation. Is an important, politically charged issue on Cedar River.
Inside UGA: Explore redevelopment and restoration options in Reach 2 and 3, particularly in area of industrial use in Reach 3 that is likely to be redeveloped in the near future. Offer regulatory flexibility or other incentives to encourage buffer and floodplain improvements during redevelopment. (C204, C206)	No projects are on the 3 year work program list.	Renton	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Study options to protect in-stream habitat in Reach 4 (which has extensive large woody debris) & reduce flooding and erosion in Ron Regis Park (such as adding setback levee and large woody	Acquisition and Habitat Protection Upstream of Ron Regis Park – Reach 4	King County	Yes – 1	Yes	No	Yes	Yes $200K	1	N/A	Project is underway.

Chinook Salmon Recovery Plan Element CEDAR RIVER/ LAKE WASH/LAKE SAMMAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Strategy Leaders	Priority	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM?	COMMENTS
debris for bank stability). (C213, C214)										
• Explore opportunities to remove impervious surface area and bank hardening, and restore riparian buffer in area of multi-family residential use in Reach 3. (C207)	No projects are on the 3 year work program list.	Renton	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Explore opportunities for flood buyout in the Maplewood neighborhood in Reach 3 and restore floodplain. (C208)	No projects are on the 3 year work program list.	King County	No	No	No	None	No	0	No	Is on CIP List for King County Flood Levy, but implementation is a few years out.
Outside UGAs Continue Cedar River Legacy Program to protect best remaining habitat:	See other acquisition projects in Lower Cedar River on 3 year work program.	King County City of Seattle	No	No	No	None	No	0	No	See other acquisitions.
Protect Jones Reach - 29 acres, 16 parcels targeted in Reach 8. (C228)	Jones Reach Acquisition and Habitat Protection	King County-Seattle Partnership	Yes – 1	Yes	No	Yes	Yes $3.8M	1	No	Project is underway.
Protect Belmondo Reach - 71 acres, 10 parcels with no levees, numerous side-channels, braided channel in Reach 9. (C232)	Belmondo Reach Acquisition	King County	Yes – 1	Yes	No	Yes	Yes $3.1M	1	No	Project is underway.
Protect 5-acre parcel including 218th Place side-channel across from Taylor Creek confluence in Reach 11. (C244)	218th Place Side Channel Protection and Enhancement	King County	Yes – 1	Yes	No	Yes	No $500K	0?	No	It appears there is no funding for this project.
Protect Mouth of Taylor Creek Reach - acquire ~40 acres of forested	Mouth of Taylor Creek Reach Acquisition	King County	Yes – 1	Yes	No	Yes	Yes $3.5M	1	No	Project is underway.

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riparian floodplain associated with both the Cedar mainstem and the lower Taylor Creek in Reach 11. (C245)										
Protect Landsburg Reach - 87 acres, including forested floodplain and areas of unarmored, steep bank in Reach 18. (C263)	Landsburg Reach	Unknown	No	No	No	None	No	0	No	Most of reach is protected.
Protect Royal Bend - protect ~7 parcels, riverfront and floodplain (spans Reach 12-13) (C247, C249)	Royal Arch Reach Acquisitions	City of Seattle	Yes – 1	Yes	No	No	Yes $2.0M	1	No	In progress.
Cedar Rapids Reach - acquire ~15 acres, remove levee and restore floodplain in Reach 7. (C222, C224)	Cedar Rapids Acquisition	King County	No	No	No	None	No	0	No	Done.
Continue Bucks Curve buyouts and restore floodplain in Reach 5. (C215)	Bucks Curve Buyout Project	King County City of Seattle	Yes-1	Yes	No	Yes	Yes $2,250,000	1	n/a	Project is in progress.
Restore side-channel on Renton Lions Club in Reach 10. (C233)	Lower Lion's Stream Reach Acquisition	King County	Yes – 1	Yes	No	Yes	Yes $1,620,000	1	n/a	Project in progress.
Carry out Dorre Don area flood buyouts and floodplain restoration in Reach 14. (C252)	Dorre Don Meanders Reach Acquisition Project	King County, City of Seattle	Yes-1	Yes	No	Yes	Yes $4 million	1	n/a	Project is in progress.
Protect Dorre Don Meanders Reach – acquire ~71 acres in Reach 13 and 14 (C250, C253).	Dorre Don Meanders Reach Acquisition Project	King County	No	No	No	None	No	0	No	Project is in progress.
D. Protect and restore		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found high

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water quality from fine sediments, metals, low dissolved oxygen, and high temperatures										level of implementation for Water Quality Education and Stormwater BMPs. Most jurisdictions working to comply with NPDES permits. WRIA 8 Summit will summarize WQ trends for WRIA 8.
Basin Wide Strategies Jurisdictions should adopt and enforce stormwater regulations and best management practices, consistent with DOE's 2001 Stormwater Management Manual (or beyond), as part of the NPDES Phase 1 and Phase 2 permit requirements.		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found high level of implementation for Water Quality Education and Stormwater BMPs. Most jurisdictions working to comply with NPDES permits.
Water quality problems should be addressed through stormwater programs (including low impact development BMPs), current and future TMDLs, livestock programs, and upgrade of stormwater facilities (where possible). (C12)		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found high level of implementation for Water Quality Education and Stormwater BMPs. Most jurisdictions working to comply with NPDES permits. There is a TMDL plan for Bear/Evans Creeks. Livestock workshops being done for Bear Creek watershed. KCD/SCD assist with farm plans for livestock management.
Explore options to improve stormwater management in developed areas, e.g.,	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found high level of implementation for Water Quality Education

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through development of regional stormwater facilities and natural drainage systems (e.g., SEA Streets). Promote stormwater BMPs for parking lot cleaning, storm drain maintenance and road cleaning. (C13)										and Stormwater BMPs. Most jurisdictions working to comply with NPDES permits.
State/local transportation departments should address runoff from all roads and retrofit existing roads as part of major maintenance, expansion or upgrade projects; road maintenance actions should be consistent with Tri-County guidelines. Stormwater impacts from major transportation projects (for new and expanded roadways proposed during the next ten years) should be addressed. WSDOT should improve stormwater management on SR 169. (C14, C15, C16)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 not tracking.
Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute		Unknown	No	No	No	None	No	0	No	Being done through STORM group.

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water quality poster series depicting impacts of everyday BMP practices. (C710)										
Publicize emergency call numbers for public to report water quality and quantity problems, illegal vegetation clearing, and non-permitted in-stream grading and wood removal incidents. (C713)		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found high level of implementation for WQ call numbers. WRIA 8 is not tracking violations of regulations.
E. Provide adequate stream flow to allow upstream migration and spawning.										
Protect groundwater supplies and prevent illegal withdrawals through regulation, incentives, outreach and education. (C22)		Unknown	No	No	No	None	No	0	No	WRIA 8 survey found a low implementation for addressing illegal withdrawals. The areas of WRIA 8 with low flow issues appear to have CARA protections in place.
Work with City of Seattle, Cedar River Instream Flow Commission, and other stakeholders on policies, procedures and research related to effects of flow on habitat restoration. (C23)		Unknown	No	No	No	None	No	0	No	The Instream Flow Commission is in place and the City of Seattle is adaptively managing Cedar River flows. Covered by Cedar River HCP and not being tracked by WRIA 8.
Address flow issues through other regulations/ programs including: critical aquifer recharge area protections, land use regulations, groundwater management plans, stormwater regulations, and	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 not tracking. 2008 analysis of how WRIA 8 programmatic actions are being implemented through other programs flagged flow issues as needing more attention/scrutiny.

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BMPs for infiltration, LID. (C19, C21, C20)										
Promote availability of water conservation education and incentive programs (e.g., rebates for efficient toilets, free landscape irrigation audits) to decrease household, commercial, and landscaping irrigation water consumption throughout WRIA 8. (C24, C708)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found a medium level of implementation for water conservation education, but suspect this is an under reporting because water purveyors were not surveyed.
Tier 2 subareas: (Upper Cedar River, Rock Creek, and Taylor Creek)										
A**. Protect availability of high-quality habitat in Tier 2 subareas**										
Upper Cedar River	Study where and how to add LWD to upper Cedar River mainstem and implement program. Project must address dam safety. (C607)	Seattle								WRIA 8 not tracking. Covered by Cedar River HCP.
Rock Creek	Provide enhanced flows for pre-spawning migrants. Work with the City of Kent to establish instream flows that are protective of Chinook through their HCP process. Investigate and address other impacts to flows through stormwater management (C73, C75, C76, C80, C351)	Kent								City of Kent HCP for Rock Creek Water Supply recently released. Will set instream flow regime for Rock Creek.

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B. Floodplain restoration near mouth	Purchase house on right bank, remove bank hardening, add LWD and restore riparian vegetation. (C341)	Kent					Yes			To be done as part of Kent HCP. Timing unknown.
Taylor Creek	Adopt and enforce stormwater regulations BMPS to reduce stormwater flows that have increased bed scour and depositions. Address flashy flows through forest cover retention, LID techniques, ESC and improved stormwater management on new and existing roads. (C64)	King County								Being done through NPDES implementation.
Lower Taylor Creek floodplain restoration (Reach 2)	Relocate 800 feet of stream away from Maxwell Road, restore floodplain wetlands and off-channel habitat, place large woody debris, and restore riparian vegetation. (C333)	King County					Yes			Done.
North Lake Washington Population										
Tier 1 subareas: (Bear, Cottage Lake/Cold Creeks)										
A. Identify and protect headwater areas, wetlands and groundwater sources to maintain hydrologic processes and temperatures that support Chinook.										
Basinwide:	Protect headwater wetlands, seeps and groundwater recharge areas through CAOs	Snohomish County, King County,								CAOs and CARAs in place.

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	(CARA) regulations, incentives and acquisitions. Support with public outreach. (N1 N722, N723)	Woodinville								
	Determine source of Cold Creek groundwater springs in Cottage Lake Creek and develop protection measures. Manage growth in Woodinville UGA to protect headwaters. (N4)	King County					Yes, KCD grant			Study completed by King County. Woodinville protecting through regulations.
	Educate public on interconnectivity of hydrologic systems. (N722, N723, N724)	King County								WRIA 8 survey found a medium level of implementation, but also noted parts of the watershed with low flow issues seem to have education in place.
B. Protect and restore forest cover; soil infiltrative capacity and wetlands, minimize impervious surfaces										
Basinwide:										
Continue forest cover and riparian buffer protections; enforce regulations; provide incentives; provide forest stewardship plans (N7, N701, N702, N704)		King County, Snohomish County, Redmond	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation.
Promote LID throughout Tier ½ subareas to accommodate growth in UGAs and rural areas, while protecting ecological functions. Work with Snohomish Sustainable Development Task Force.		King County, Snohomish County, Redmond	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation

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(N6, N91-93, N719, N720, N721)										
Increase public outreach on benefit of tree retention and forest cover.		King County, Snohomish County, Redmond	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation.
Employ basinwide stewards to work with landowners, land trusts and agencies to identify and secure forested, wetland and riparian areas. (N702, 704)		King County, Snohomish County, Redmond	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation
Within UGAs Continue allocating population to UGAs and promote LID to maintain and improve WQ and flows. (N5)	No projects are on the 3 year work program list.	Redmond	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation
Protect undeveloped forested parcels in Bear Reach 6. (N216)	Bear Creek Forest cover Protection Project	King County	Yes-1	Yes	No	Yes	Yes - $800,000	1	N/A	Project is underway.
Outside UGAs: Restrict further UGA expansions except where change is beneficial to salmon; Encourage LID, low density livestock or nurseries, clustering of development; Purchase high quality land for long-term protection. (N6)		King County, Snohomish County	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation.
Adopt and strictly enforce buffers and forest cover protections in King and Snohomish counties.		King County, Snohomish County	No	No	No	None	No	0	No	See Cedar River answer to similar recommendation

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(N10)										
Protect and restore forest cover in rural areas. Protect large, undeveloped forested parcels in Lower Bear Reach 7, Upper Bear Reach 7 and Upper Bear reaches 9 and 8. (N 224, N277, N256, N220, N235, N228)	Horse Farm Restoration Bear Creek	King County KCD	Yes-1	Yes	No	Yes	$25,000	1	No	Project underway.
C. Protect and restore riparian vegetation for channel stability, LWD for pools and to reduce peak water temps that favor non-native species.										
Basinwide Strategies										
Implement regulations and incentives to protect and restore riparian buffers (use CAOs, SMPs, etc.) Implement county livestock program, farm plans and cost- sharing. (N12)		King County KCD, SCD	No	No	No	None	No	0	No	CAOs have been updated and SMPs are in the process of being updated. WRIA 8 will report on trends in riparian buffers at WRIA 8 Summit. KCD/SCD doing workshops for livestock owners in Bear Creek Watershed in 2010.
Inside UGAs										
Expand outreach to streamside property owners about shoreline landscape design, maintenance, and stream bank armoring alternatives. (N703, N707, N708, N709, N725)		King County, Redmond	No	No	No	None	No	0	No	See Cedar River answer.
Carry out riparian restoration of publicly owned properties in Bear Creek Reach 3. (N206)	NLW Tributaries Riparian Restoration	City of Redmond	Yes-1	Yes	No	Yes	Yes $25,000	1	No	Appears to be in progress.

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Offer educational opportunities to landscape designers/ contractors on riparian design/ installation, alternative to invasive species, and promote use of compost. (N714, N721)		King County, Redmond	No	No	No	None	No	0	No	See Cedar River answer.
Outside UGAs Remove invasive plants and plant riparian buffers along Bear Creek throughout Paradise Valley Conservation Area (Reach 16). (N276)	Paradise Valley Conservation Area Restoration Bear Creek	Sno Co	Yes-1	Yes	No	Yes	Yes-$50,000	1	No	Appears to be in progress.
Work with private property owners upstream of Native Growth Protection Easements in Cottage Lake Creek Reach 3 to restore riparian buffers. (N298)	No projects are on the 3 year work program list.	King County	No	No	No	None	Partial, KCD grant	0	No	In process
D. Protect and restore floodplain connectivity and increase off-channel habitat; Protect and increase channel complexity, including large, woody debris; reduce water temperature.										
Basinwide: Limit new development in floodplains; develop and apply standards which minimize impacts to salmon. Minimize number and width of new roads through transportation planning and implementation. (N15)		King County	No	No	No	None	No	0	No	See Cedar River answer.
Increase public awareness about the value of LWD and native vegetation for		King County	No	No	No	None	No	0	No	See Cedar River answer.

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flood protection, salmon habitat, and healthy streams. (N708)										
Inside UGAs Protect former dairy farm in Bear Creek Reaches 4 and 5, and restore riparian conditions, instream channel complexity and increase off-channel habitat. Also reduce inputs of fine sediments into these reaches of Bear Creek. (N211, N208)	Dairy Farm Bear Creek Reach 4 and 5	City of Redmond	Yes-1	Yes	No	Yes	Yes-3 million total cost	1	No	In process; site may become a wetland mitigation bank restoration site.
Restore meanders, instream channel complexity, off-channel habitat, and riparian vegetation in lower 3000 feet of Bear Creek (Reach 1), Enhance mouth of Bear Creek to create cool refuge pool for migrating adults. Work with media to record process and share results with the public. (N201)	Lower Bear Creek Restoration Project N201; Sammamish River Tributary Mouth Feasibility and Restoration Project	City of Redmond	Yes-1	Yes	No	Yes	Yes $10m total cost Samm. Trib is $150k	2	No	Project is in design and permitting 2006-2010 and construction is expected in 2011.
Protect undeveloped, forested properties in Bear Reach 6. (N218)	IS A REPEAT, SEE ABOVE	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Outside UGAs										
Continue protection of best remaining habitat through Bear Creek Waterways Program (includes Cottage Lake/Cold creeks). Priority reaches for protection identified through the Waterways program include:										
Reach A (EDT Reaches in priority order: Bear 15-16, 14) (particularly Stevens, Dolittle parcels) (N272,	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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N268);										
Reach B (EDT Reaches in priority order: Bear 14, 13, 10, 11, 12) (N264, N246, N253, N257);	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Reach C (EDT Reaches in priority order: Cottage Lake 4, 5/6) (particularly forested parcels south of NE Woodinville Rd) (N311, N320);	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Reach D (EDT Reaches in priority order: Bear 7, 8, 9) (esp. parcel near Classic Nursery, Grandstand, Swanson Horse Farm) (N222, N232, N239)	Reach 9 Bear Creek waterways program; Reach D and E projects	King County	Yes-1	Yes	No	Yes	Yes $1,350,000 – Project (N239) $500,000 (N232)	2	n/a	Project is underway.
Reach E (EDT Reaches in priority order: Cottage Lake 3, 2, 1) (esp. Nickels Farm) (N303, N293, N286)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Add large woody debris throughout watershed, but esp. in Bear Creek Reaches 10, 9, 8 (in EDT priority order). (N242, N235, N226)	Evaluate LWD Locations Project	King County	Yes-1	Yes	No	Yes	Yes? $350k	1	No	Focusing on Reach 6 – feasibility study. Can't tell if funded.
Explore opportunities to improve floodplain connection in Reach 1 of Cottage Creek by removing riprap or artificial constrictions. (N282)	Cottage Creek Restoration Project	King County	Yes-1	Yes	No	Yes	Yes- $90,000	1	No	Project is underway.
E. Protect and restore water quality from fine sediments, metals, high temps. and bed-scouring high flows.										

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Basinwide: Identify sources and adopt source control of fine sediments and metals in mainstems and tributaries (e.g., from new construction, sand on roads, farms) through stormwater management and clearing and grading ordinances. Jurisdictions should adopt and enforce regulations and BMPs consistent with DOE 2001+ Stormwater Management Manual as part of the NPDES Phase 1and Phase 2 permits. Water quality problems should be addressed through stormwater programs (including LID and BMPs), current and future TMDLs, livestock management programs, and upgrade of stormwater facilities (where possible). (N18)		King County	No	No	No	None	No	0	No	See Cedar River answer
• Work with WSDOT and local govts. to pursue opportunities to retrofit existing roadways with stormwater BMPs to improve water quality and flows. Stormwater impacts from major transportation projects (for	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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new and expanded roadways proposed during the next ten years) should also be addressed. (N21-22)										
Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute water quality poster series depicting impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. Promote stormwater BMPs related to parking lot cleaning, storm drain maintenance, and road cleaning. (N726, N727, N729, N731)										Being done through STORM group.
Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or "Street of Dreams" type event featuring these		Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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landscape /engineering treatments. (N720, N721)										
Publicize emergency call numbers for public to report water quality and quantity problems, illegal vegetation clearing, and non-permitted in-stream grading, and wood removal incidents. (N731)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Inside UGAs Commercial/ industrial areas should be investigated for water quality and runoff issues and potential stormwater facilities planned and built. (N23)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
•Add water quality treatment for stormwater runoff from freeway in Bear Creek Reach 1. (N202)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Outside UGAs: Implement and enforce livestock ordinances, making highest priority those areas that are most susceptible due to fine soils; and work with farmers to adopt and implement farm plans. Coordinate with other stewardship and education programs, (e.g., Horses for Clean Water). (N19, N702, N713)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	Livestock Workshops being done in Bear Creek in 2010.

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Reduce fine sediment inputs and restore riparian areas at Swanson Horse Farm property on NE 140th St. in Bear Creek Reach 8, and the Nickels Farm in Cottage Lake Creek Reach 2 (N236, N289)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
F. Provide adequate stream flow to allow upstream migration and spawning.										
Basinwide Strategies Adopt stormwater regulations to address high flows, flashiness, and protection of base flows. Include forest retention and LID, BMPs to improve infiltration. (N20, N27)		Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Work with DOE, local health departments, and water suppliers on regulations, incentives, and education related to impact of surface and groundwater withdrawals, including municipal water withdrawals (e.g., City of Redmond), illegal withdrawals, and exempt wells on flow conditions throughout basin.		Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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Determine source of illegal surface water withdrawals; take enforcement actions. (N25-26)		Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Increase outreach about illegal water withdrawals, and exempt wells, and max. quantities that may be withdrawn per day. Clarify distinction between withdrawals and unpermitted river diversions. Create citizen-based watchdog groups to watch for people drawing directly from creeks and streams.		Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Promote availability of water conservation education and incentive programs to decrease household, commercial, and landscaping irrigation water consumption throughout WRIA 8. (N28, N723)		Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Tier 1 Migratory Strategies:										
Lake Washington (including Union Bay) Lake Sammamish										
A. Reduce predation to out-migrating juvenile Chinook										
Basinwide recommendations										
Encourage salmon friendly shoreline design during new construction or redevelopment by offering		WRIA 8, Seattle, NOAA, Dept. of	No	No	No	None	No, applied for grant to continue.	0	No	In process, needs funding. Green Shorelines steering committee formed in 2008. Working to increase

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incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines. Increase enforcement and address nonconforming structures over long-run by requiring that major redevelopment projects meet current standards. (C27-29, N50, N52-53, I54-56)		Ecology, Gov Office of Regulatory Assistance, Sea Grant								incentives and decrease barriers to Green Shorelines. Guidebook, website and mailers to property owners done.
Discourage construction of new bulkheads; offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation. (C30, N51, I52)		DOE, lakeshore jurisdictions	No	No	No	None	No	0	No	SMP updates in process which will discourage new bulkheads. See above.
• Support joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications to streamline federal/ state/local permitting; encourage similar effort for bulkhead specifications. (C32-33, N55-56, I57, I66)		Green Shorelines Steering Committee	No	No	No	None	No	0	No	In process
• Promote value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to		Green Shorelines Steering Committee	No	No	No	None	No	0	No	In process.

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lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal. Offer financial incentives for community docks in terms of reduced permit fees, loan fees/percentage rates, taxes, and permitting time, in addition to construction cost savings. (C734, C735)										
• Develop workshop series specifically for lakeshore property owners on lakeside living: natural yard care, alternatives to vertical wall bulkheads, fish friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks. Related efforts include creation of a website to convey workshop material, an awareness campaign, "Build a Beach," to illuminate impact of bulkheads on development of sandy beaches. (C729, C730, C736)		Unknown	No	No	No	None	No	0	No	Workshops done in 2004. Other outreach in process and development.

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Restore shoreline in Lake Washington Section 1: restore DNR property as part of shoreline trail project; work with private property owners to restore shoreline in Section 1. Use interpretive signage where possible to explain restoration efforts. (C269, C270, C272, C738)	Lake Washington DNR Project	DNR	Yes-1	Yes	No	No	No-Cost not stated	0	No	Project is pending feasibility/design.
Restore shoreline in Lake Washington Section 2: remove marina & bulkhead at Rainer Beach Lake Park, create shallow-water habitat and restore native overhanging vegetation; remove concrete bulkhead in northern portion of Pritchard Island Beach, create shallow-water habitat and restore native overhanging vegetation. (C275, C276)		Seattle	yes-1	No	No	None	No	0	No	Rainer Beach Done (renamed Chinook Beach)
• Lake Sammamish State Park Protection: Several proposals exist pertaining to planned park development. Ensure that final park development plan adequately protects floodplain/riparian *processes and mouth of Issaquah Creek. (Issaquah Reach 1, Lake*	Sammamish State Park Restoration	WA Parks	Yes-1	Yes	No	Yes	$150,000	1	n/a	Project is underway.

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Sammamish Section 1) (I204, I292)										
B. Protect and restore water quality in tributaries and along shoreline. Restore coho runs in smaller tributaries as control mechanism to reduce the cutthroat population. Reconnect and enhance small creek mouths as juvenile rearing areas.										
Address water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with DOE 2001 Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Stormwater impacts from major transportation projects (for new and expanded roadways proposed during the next ten years) should be addressed. Encourage LID through regulations, incentives, education/training, and demonstration projects throughout subarea. (C39, N63, I72, I74)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Protect and restore water quality and other ecological functions in	No projects are on the 3 year work program list.	Unknown	Yes-1	No	No	None	No	0	No	Madronna Creek mouth restored. Mapes Creek mouth restoration in

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tributaries to reduce effects of urbanization and reduce conditions which encourage cutthroat. Protect and restore forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools. (C38, N64, I75 C747, C748)										feasibility/design.
Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape /engineering treatments. (C748)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River.
Enhance small creek mouths in Lake Washington Segment 1: enhance Mouth of Kennydale Creek in Gene Coulon Park; enhance mouth and lower reaches of Johns Creek. Encourage participation of citizen-based stewardship	1 project on the 3 year work plan	City of Seattle	Yes-1	Yes	No	?	No total cost $3.5 million	0 of 1	No	This project is not funded; at feasibility stage.

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efforts in these restoration projects (such as Stream Teams). (C268, C267, C719, C721, N716)										
Daylight Zacusse Creek and enhance mouth on East shore of Lake Sammamish to benefit Kokanee, juvenile Chinook and other fish species.		KCD, City of Sammamish	No	No	No	None	No	0	No	Zacusse Creek daylighting done.
Enhance mouth and protect lower reaches of Ebright Creek on East shore of Lake Sammamish to benefit Kokanee, juvenile Chinook and other fish species.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
C. Protect and restore cool clean water sources and inflows to the Sammamish River by protecting and restoring large and small tributaries, protecting groundwater.										
Basinwide Address water quality issues, through stormwater regulations (NPDES, BMPs, LID) education and incentives. Target ag. commercial, industrial, & residential landowners. (N34-37)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Work with DOE, health departments, and water suppliers to address municipal water withdrawals, illegal withdrawals, exempt wells that impact Sammamish River flows and related high temperatures.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.. Reclaimed water study in process by King County Wastewater.

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Research: (1) using reclaimed Water (2) shifting municipal water supply sources to maximize summer flows; (3) Extent of impacts from agricultural, commercial, and industrial sectors. (N29-30, N33)										
Bolster water conservation outreach in Sammamish watershed for flows and temp. Through incentive programs (N733, N734)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
D. Reaches 3-6: Restore floodplain connections; increase river meandering										
Basinwide Encourage bank re-grading and re-vegetation of riparian buffers on mainstem and tributaries using incentives. (N42-43)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Reach 3 and Reach 5 (NE 90th - NE 100th) Pursue opportunities to re-grade banks, create flood benches at or below OWHM, and remove non-native vegetation and replant. Consider lowering benches from earlier restoration projects in Reach 5 (e.g., Mammoth Sammamish north of Willows Creek on west side and Willows Creek outfall). (N356, N343)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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Restore Transition Zone in Marymoor Park - Restore left meander below the weir in Reach 6. (N358)	Transition Zone Protection and Restoration	King County	Yes-1	Yes	No	Yes	Yes -	1	n/a	Feasibility studies done.
Use Sammamish River trail to provide public outreach and education. Enhance interpretive efforts on projects and encourage media coverage. Continue to use citizen volunteers to assist in restoration and maintenance of project sites. (N710, N711)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
E. In Reach 1, 2 Increase off-channel habitats, enhance and reconnect riparian wetlands to the river, add large woody debris as cover for juvenile fish and to create backwater pools										
Enhance and connect wetlands and remnant side channels to the river in Reach 2 adjacent to the 102nd Avenue bridge on both on the right and left banks. (N337, N338)	Sammamish River Reach 2 Wetland Restoration (right bank in Bothell) adjacent to the 102nd Ave Bridge	City of Bothell	None	Yes	No	No	no	0	n/a	No funding stated. This project is not advancing although it is on the 3-year work program list.
Basin-wide Strategies Sammamish River mouth wetland restoration in Reach 1 - restore wetlands on King County property near mouth and on island. (N332)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Enhance and reconnect riparian wetlands to river at Wildcliff Shores in Reach 1, across from Swamp Creek. Restore riparian vegetation. (N334)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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Restore large, publicly owned wetland complex at the confluence of Swamp Creek and the Sammamish River, creating a diversity of wetland elevations and habitats in the floodplain. Purchase parcel to the east of Swamp Creek Regional Park for inclusion in restoration project in Reach 1. (N335, N336)	Swamp Creek Regional Park wetland and stream restoration N335	Unknown	Yes-1	Yes	No	No	No	0	n/a	Funding is not stated; this project is not underway.
F. Protect and restore riparian vegetation along the mainstem and tributaries to Sammamish River for shade and LWD.										
Restore shoreline as part of cleanup/ re-development of Lake Pointe Property in Reach 1 (N45, N333)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Continue and expand projects such as Sammamish Re-Leaf and Redmond River Walk to plant early successional riparian vegetation that provide shade, esp. in Reaches 4, 6.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	In process.
Support riparian restoration in agricultural areas through King County's agriculture programs. (N37, N351, N362, N361)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Encourage neighborhood garden tours of salmon friendly gardens to help	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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residents visualize (N716)										
G. Increase refuge areas for adult migration. Add large woody debris to enhance existing pools and create new pools, particularly in areas of groundwater upwelling. Enhance mouths of small tributaries to create cool refuge pools (add large woody debris, riparian vegetation)										
Enhance the mouths of small tributaries to create refuge areas. Projects should include correction of fish passage barriers, riparian restoration, placement of LWD and creation of cool-water refuge pool. Opportunities exist in Reach 2 (Tributaries 0057A, 0068, 0069); Reach 5 (Willows, Peters); Reach 3 (Derby, Gold and Woodin Creeks); and Reach 4 (Tributary 0095A, 0095 and 0096). (Note: Reaches listed in EDT priority order). (N339, N357, N342, N346)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Tier 2 subareas (Little Bear Creek and North Creek)										
Protect forest cover, wetland areas and minimize impervious surfaces to maintain watershed function and hydrologic integrity and protect water quality. Due to more limited protection opportunities in North Creek, restoration to reduce sedimentation and increase floodplain connectivity is also a priority.										
Little Bear Subarea Strategies:										
Prevent UGA expansions unless such change is beneficial to salmon. Protect remaining watershed function by managing any additional growth in rural areas through incentives and	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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regulations (N67)										
Protect headwaters, wetlands and forest cover through acquisitions or conservation easements, particularly in Reaches 10, 11, 12 and 9.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Protect undeveloped, forested wetlands (second-growth forest) in Reach 10 covering approximately 110 acres and 10 parcels owned by two landowners. (N424)	Little Bear Reach Riparian Wetland Protection project	Sno Co	Yes-2	Yes	No	Yes?	Yes $1m	1	No	Project is underway
□ Protect 88 acres of mature second-growth forest on right bank of Little Bear Creek in Reach 11. Includes 5 parcels. (N427)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Protect forested headwater wetlands north of 180th to 156th, an approximately 2-mile stretch of Little Bear Creek (Reach 12). Includes 3 wetland complexes totaling over 200 acres. (N429)	Little Bear Creek Forest Headwater Wetlands Protection	Sno Co	Yes-2	Yes	No	Yes -	Yes$1.5 million	1	No	Project is in progress.
□ Protect large, undeveloped forested wetland on both Little Bear (Reach 9) and Great Dane (Reach 1) Creeks. Approximately 100 acres including 10 parcels. (N422)	Little Bear and Great Dane Creeks Forested Wetland Protection Project	Sno. County	Yes-2	Yes	No	Yes	Yes - $1m	1	n/a	Project underway; 10 parcels and 100 acres to be protected.

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***North Creek Subarea Strategies*:**										
A. Inadequate base flows, flooding, and flashy hydrology pose serious problems in North Creek.										
Address hydrology problems through stormwater management, improved information about and enforcement of surface and groundwater withdrawals, TMDLs, more aggressive water conservation, (N107)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Protect remaining forest cover and wetlands through CAOs, stormwater regulations, BMPs & incentives. Protect undeveloped forested areas and wetlands in the following reaches: Lower North reaches 4, 3, 2 and Upper North reaches 10, 9, 6, 7. (Note: Reaches listed in EDT priority order). (N71, N376, N372, N370, N371, N396, N393, N385, N389)	Reach 6 protection through acquisition	Unknown	Yes-2	Yes	No	?	$2million	1	No	Project appears to be underway, but unclear as to who is sponsoring it.
Implement restoration projects to reduce sedimentation and increase floodplain connectivity, particularly in Reaches 2, 4 and 5 (Note: Reaches listed in EDT priority order)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Explore possible floodplain restoration on	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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unused baseball diamond and privately owned property between 195th and I-405 in Reach 2. Setback levee, increase flood storage, restore off-channel habitat and add large woody debris. (N367)										
□ Enhance incised stream channel in Thrashers Corner area in Reach 4, restore riparian vegetation, plant conifers, and add large woody debris. (N375)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Expand existing restoration project upstream and downstream of existing area just upstream of 208th in Reach 5. Restore riparian vegetation, add large woody debris, and enhance side channel habitat. (N377, N373)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Work with landowners in Reach 5 of North Creek to restore riparian vegetation and to do stream enhancements (N379).	North Creek School (Clearwater School) Restoration project (N378)	Sno. County	Yes-2	Yes	No	Yes	Yes $374,710	1	N/A	Lower tier project; may not match the reach listed.
Issaquah										
Tier 1 subareas: (Lower, Middle, East Fork, North Fork Issaquah Creek; Carey and Holder Creeks; Fifteen Mile Creek)										

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Identify and protect headwaters &sources of groundwater to maintain cold water temperatures and hydrologic integrity (esp. Carey and Holder Creeks)										
INSIDE UGAs Support Issaquah's proposed critical aquifer recharge area (CARA) provisions that incorporate groundwater quality protections in well head capture zones and a broader protection area where infiltration will be required for groundwater recharge. (I19)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Protect the headwater wetlands of North Fork (Reach 2). (I281)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Outside UGAs Protect headwaters and groundwater through variety of tools: See, King County's 2003 *Taylor Mountain Forest Stewardship Plan* and forest Stewardship plans. (I16-17)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Protect existing natural flow regime in the headwaters areas of Carey and Holder creeks, which are in the Tiger Mountain State Forest and Taylor Mountain County Forest vicinity, through acquisition, TDR or easements. Provide better incentives to retain and plant	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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forested areas. (Carey Creek Reaches 3, 4 and Holder Creek Reach 3). (I5-7)										
Maintain Watershed Hydrology: Protect forest cover, soil infiltrative capacity, wetlands, & minimize increased impervious surfaces										
Basin Wide Strategies: Encourage low impact development (including low density livestock or garden enterprises) through regulations, incentives, and education/training (I3, I715, I719, I720, I722)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Offer incentives to continue to protect and restore conditions beyond those which are protected through regulations. (TDR, PBRS) (I5, I701)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Sponsor design competitions for innovative LID features. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape /engineering treatments. (I720, I722)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Employ basinwide stewards and farm planners/ livestock stewards to work with property owners, land trusts, and agencies in order to identify and secure forested, wetland,	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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and riparian areas, and encourage use of BMPs. (I701, I702)										
Encourage neighborhood and community protection associations that foster the ethic of voluntary stewardship; gain community support for forest land acquisition; and build bridges between groups. Continue the Issaquah Basin Action Team and expand to include more community representation from East Fork communities and Upper Issaquah Basin. (I711, I716, I717)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Inside UGAs: Per GMA, locate new growth w/in City of Issaquah. Control new development to minimize impacts on water quality, instream flows, and riparian buffers by encouraging LID through 3-tiered approach: 1) revise existing codes; 2) provide technical information to developers; 3) promote demo projects through incentives, technical asst. (I12-13)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer..
Outside UGAs:	No projects are on the 3	Unknown	No	No	No	None	No	0	No	See Cedar River answer..

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Promote comprehensive approach taken in Bear Creek basin during past decade to include: strictly enforced regulations; King County basin steward doing targeted outreach to streamside landowners, and a range of incentives (i.e., acquisition, PBRS program, conservation easements). (I2, I4, I727	year work program list.									
Protect riparian vegetation to provide sources of large woody debris that can contribute to creation of pools.										
Basinwide Strategies: Protect riparian buffers, remove channel confinement through regulations (CAOs), incentives (PBRS or easements) Protect and restore riparian corridors by implementing required fencing/set asides & options for planting and cost sharing thru King County Livestock Program. (I28, I30)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Continue/expand Creekside Landowner Assist Program. Perform outreach through direct mailings, videos and expansion of "Streamside Living Welcome Wagon" outreach program.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer..

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(I702, I704, I709)										
Offer educational opportunities to landscape designers and contractors on riparian design, Installation alternatives to invasive species, and composting. (I713)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Inside UGAs Continue to tighten regulations affecting riparian buffers, including more restricted application of buffer averaging, fewer allowable uses in buffers. Decrease level of nonconforming uses. (I25-26)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Protect floodplain connectivity, instream channel complexity and habitat forming features to protect key life stages by limiting road crossings and bank armoring.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Basinwide: Limit new development and roads in floodplains; develop and apply standards which minimize impacts to salmon. Planning for new roads, and maintenance and retrofitting of existing roads, should minimize impacts on floodplains and	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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water quality. (I38-40, I49)										
Increase public awareness of the value of large woody debris and vegetated areas for flood protection, salmon protection and healthy streams in print (e.g., local papers, community newsletters, signage) and other means (e.g., Issaquah Salmon Days, Sammamish Watershed Festival activities, local cable channels, hatchery docent presentations). (I705)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Within UGAs Consider flexibility in prescriptive buffer width standards in exchange for stream habitat and buffer enhancement during redevelopment. However, limit buffer width reductions for new development because a key issue for Issaquah Creek is encroachment into floodplain and channel confinement, and revegetation does not improve this riparian function. (I29)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer..
Continue Issaquah	3 Projects Planned:	Issaquah	Yes-1	Yes	No	No	No-I208	2 of32	n/a	No funding for Bush Lane

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Waterways Program to protect best remaining habitat within urban growth area: □ Continue South Issaquah Creek Greenway acquisitions in Reach 7 of Issaquah Creek including Fowler Site, Mohl Property and other properties. (I225) □ Acquire Bush Lane Properties, 12.5 acres of floodplain lying between Issaquah Creek (Reach 2) and North Fork Issaquah Creek (Reach 1). Includes 1200 feet of east bank of Issaquah Creek and 900 feet of North Fork Issaquah Creek. (I208, I274) □ Protect corridor along Wildwood Blvd Trail, located on west bank of Issaquah Creek in Reach 6 near hatchery intake dam. (I222) □ Acquire "Guano Acres," one of the few remaining large undeveloped parcels (8 acres) on lower Issaquah Creek in Reach 6. (I223) □ Acquire 5 acres for	-**Bush Lane Acquisition and Restoration (I208)** **-Additional South Issaquah Creek Greenway Acquisitions (I225)** **Wildwood Acquisition (I222)**						Yes – I225 ($750k) Yes - $300k (I222)			project. Other project are underway.

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future restoration downstream of Juniper Street on Issaquah Creek in Reach 3. (I210) □ Acquire one of the few remaining undeveloped parcels (2 acres) on lower Issaquah Creek upstream of Juniper Street in Reach 4. (I214) □ Acquire Anderson Property, located at confluence of Issaquah Creek Reach 4 and East Fork Issaquah Creek Reach 1. (I215, I285										
Outside UGAs Continue Issaquah Waterways Program to protect best remaining habitat outside Urban Growth Area: □ Complete Issaquah Creek/Log Cabin Reach (RM 8.4-10, 155 acres) acquisition in Issaquah Reach 11 and expand to include adjacent undeveloped large parcels in Reach 12 (SE 156th Street to 252nd Avenue SE). (I244, I249) □ Carey/Holder/ Issaquah Creek Confluence Project: 120-	Issaquah Waterways Acquisition and Restoration project Carey/Holder/Issaquah Creek Confluence (I250)	King County	Yes – 1	Yes	No	Yes	Yes $700k	1	n/a	1 project is underway.

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acre site proposed for a conservation easement. Plan includes increased fenced buffers (Issaquah Reach 12, Carey Reach 1, and Holder Reach 1). (I250, I252, I259) □ Protect best remaining habitat in Holder Creek including inholdings on Taylor and Tiger mountains (Holder Reaches 2 and 3). (I263, I261) □ Protect best remaining habitat in Carey Creek from the confluence with Issaquah Creek to Taylor Mountain in Carey Reaches 1, 2 and 3. (I253, I254, I255) • Issaquah Reach 9 and 10: Work with private property owners specifically in this reach to develop Public Benefit Rating System or easement to increase stream buffer protection. (I233, I238)										
Protect water quality from fine sediments, metals, high temperatures, and bedscouring high flows:	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Identify water quality	No projects are on the 3	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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problems and address through stormwater management programs (including LID BMPs), current and future TMDLs, livestock management programs, upgrade of stormwater facilities (where possible), and retrofit of existing roadways to improve water quality and flows (e.g., SR-18, I-90). Jurisdictions should adopt and enforce regulations and BMPs in DOE 2001 Stormwater Management Manual (or beyond), as part of the NPDES Phase 1 and Phase 2 permit requirements. (I31-32, I36, I41)	year work program list.									
King County should implement and enforce livestock ordinance, making highest priority those areas that are most susceptible due to fine soils. Work with farmers to adopt and implement farm plans which address water quality and fish and wildlife habitat management and restoration. Coordinate with other stewardship and education programs,	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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e.g., Horses for Clean Water and Backcountry Horsemen. (I24, I712)										
Run Natural Yard Care Neighborhoods Program and other landscaping education opportunities in communities in the Issaquah Basin. Increase visitation of basin residents to Pickering Farm Community Teaching Garden. (I723)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, and non-permitted instream grading and wood removal incidents. (I729)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Coordinate with local business community and non-profits to encourage the use of commercial car washes and carwash kits. Reprint and distribute water quality poster series depicting impacts of everyday practices (I724)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Educate and support businesses, property management companies and homeowners associations on stormwater best	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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management practices, specifically related to parking lot cleaning, storm drain maintenance, and road cleaning. (I725)										
Provide adequate stream flow to allow upstream migration and spawning										
Work with govt and water suppliers on regulations, incentives, and education related to impact of municipal water withdrawals, illegal withdrawals, exempt wells on flow conditions throughout basin. Enforce water laws and prevent illegal surface water withdrawals. Develop public information and support enforcement through citizen-based watchdog groups. (I44-46)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
• Adopt and enforce stormwater provisions to address high flows and protection of base flows, including forest retention and LID BMPs. Encourage rainwater harvesting and graywater capturing for reuse in landscaping irrigation through demonstration projects, workshops and educational materials.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.

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(I47, I723, I728)										
• Continue and/or extend availability of water conservation incentive programs; outreach on rainwater harvesting, and graywater capturing for reuse in landscape irrigation. Support conservation efforts within the Cascade Water Alliance and work to coordinate the various water policy and decision makers. (I721, I728)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	See Cedar River answer.
Lake Union, Ship Canal And Locks Recommendations										
Basinwide										
Actions could include: Continue to work on improving conditions at the Locks to improve juvenile Chinook outmigration. □ Add/replace strobe lights to locks to deter smolts and prevent entrainment. (M204)	Operational Improvements to Locks	UACOE	Yes-1	Yes	No	Yes	Partial; $5.1M needed for fish passage improvements	1	No	Project is in progress.
□ Improve estuary conditions upstream of Locks: Modify the salt water barrier to let salt water in through the Locks to cool water above Locks or move the salt water drain upstream to the west end of the Fremont Cut. (M206)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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□ Locks Natural Estuary: Construct a more natural, fairly wide and long channel at the Locks facility that would allow fish to move back and forth between warmer lake outflow and cooler tidal water, and allow tidal change to inundate areas designed into the channel where fish could find refuge to hold and choose their preferred salinity. (M205)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Take advantage of enormous outreach potential at the Locks by working with the Corp of Engineers to expand or enhance educational displays. Include information about ongoing and proposed WRIA 8 conservation efforts being both taken at the Locks and throughout the watershed, as well as actions that citizens can take to improve salmon habitat at home.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
A. Provide Chinook with refuge from predators in Ship Canal, including impacts of docks. Restore riparian vegetation to provide cover for juvenile migrants.										
Explore ways to reduce predation in Portage Bay, Lake Union and Ship Canal. Conduct pilot	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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projects to reduce predator habitat or increase refuge for juvenile Chinook (M216, M214)										
Coordinate with local businesses to sponsor a shoreline re-vegetation campaign, incorporating environmental stewardship as part of redevelopment occurring within Ship Canal area. (M707)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Estuary and Nearshore Strategies (West of Locks)										
A. Protect and Restore Sediment Supply from Feeder Bluffs										
Bluffs on Magnolia and Discovery Park in Seattle are only ones in WRIA 8 that are not armored by the railroad and have some unarmored locations (publicly and privately owned). Prohibit bulkheads or any other form of armoring and development at these locations through Seattle's COAs and SMP. (M1)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Support King County-funded sediment source study to: 1) establish where feeder bluffs were prior to the railroad, and 2) qualitatively assess rates of erosion and sediment contribution of those	1 project (M2/M3)	King County	Yes-1	Yes	No	No	No $300k total project	0 of 1?	No	This project does not appear to be funded.

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bluffs. Expect study completion by 3/05. Based on study results:										
□ Map those bluffs that are most critical to protect (to preserve future opportunities to restore them to natural function), and protect them from future development through critical areas ordinance and/or Shoreline Master Program updates or acquisition. Note that steep slopes that are already developed need to be protected from erosion as a health and safety issue.	No projects are on the 3 year work program list.	King County	No	No	No	None	No	0	No	Study done.
□ Do pilot projects to open up certain slide prone areas (e.g., by building trestles under railroad), so that slides make it into the nearshore and/or investigate appropriateness of a beach nourishment program. The experimental nature of a beach nourishment program requires a comprehensive and robust adaptive management and monitoring system. (M2, M3)	No projects are on the 3 year work program list.	King County	No	No	No	None	Study Funded	0	No	Beach Nourishment feasibility study funded.
Create an education	No projects are on the 3	Unknown	No	No	No	None	No	0	No	No one appears to be

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campaign for property owners along bluff as well as general public: *Have you fed your beach today?* Define feeder bluffs, challenge the notion that all erosion is a bad thing. (M724)	year work program list.									advancing these strategies.
B. Reduce bank hardening, esp. in tidal zone to restore natural shoreline accretion & depletion processes & support littoral habitat creation. Protect and restore Marine Riparian Vegetation (MRV), to maintain overhanging cover and terrestrial inputs for juvenile Chinook & their prey.										
Protect remaining nearshore vegetation (on low or high bluffs) through regulation and/or acquisition. Regulatory tools to protect vegetation and prevent further development on and near top of bluffs, include: steep slope ordinances, bald eagle protection ordinances, critical areas ordinances, and clearing ordinances. (M7)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
• Offer incentives to encourage bulkhead removal and revegetation along shoreline, including: allow regulatory flexibility during redevelopment, provide expertise (e.g., templates for shoreline planting plan, bulkhead design); expedite permitting at local, state and federal levels. (M8)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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• For areas with existing residential, commercial, and industrial development west of the railroad (e.g. Nakeeta Beach, Point Wells, Richmond Beach): Prohibit new development, at least in areas designated as conservancy. During redevelopment, reduce overall impacts to nearshore, e.g., limit additional riprap to that required to protect structures, require riparian re-vegetation, avoid construction in intertidal zone, use smallest feasible footprint for structures, redevelop industrial sites into less intensive uses.	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
• Commodore Park and Wolfe Creek Restoration: Explore feasibility of habitat restoration at Commodore Park, located immediately downstream of the Hiram M. Chittenden Locks on the south bank. Armored seawall should be removed and restored to a gentler vegetated slope.	No projects are on the 3 year work program list.	Heron Habitat Helpers	No	No	No	None	Partially funded	0	No	Feasbility Study completed for habitat restoration in Salmon Bay including Wolfe Creek daylighting.

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Project could be combined with day-lighting of Wolf Creek to create a pocket estuary downstream of the locks. (M250)										
• Offer shoreline property owners a series of shoreline design workshops on: shoreline planting design/ noxious weed management; slope stabilization and erosion control using vegetation; natural yard care; porous paving options; alternatives to vertical wall bulkheads; salmon friendly dock design; and environmentally friendly methods of maintaining boats, docks, and decks. Offer professional workshops to marine contractors and design professionals on more environmentally friendly shoreline design. (M714, M716, M718, M719)	No projects are on the 3 year work program list.	KCD	No	No	No	None	Partial	0	No	KCD offers annual workshops for nearshore property owners.
C. Reduce the number and coverage of overwater structures (e.g., docks, piers) as a way to reduce segmentation of the shoreline and the effects on both habitat-forming processes and juvenile Chinook behavior										
Basinwide Prohibit new residential overwater structures. For new public facilities (e.g., ferry docks), incorporate salmon-friendly design	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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features and mitigate for unavoidable impacts. Retrofit existing overwater structures with salmon friendly design features. Where applicant meets guidelines for marine overwater structures, offer expedited local/state/federal permitting. (M10, M11, M13)										
Remove overwater structures and pilings when possible; increase interpretive signage and media exposure at areas where structures are removed such as at Edmonds parks. Offer incentives to build community docks to replace individual docks in Salmon Bay. (M11)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Expand outreach about value of eelgrass beds as juvenile source of food and habitat – and the negative effects that docks, overwater structures, and bulkheads have on the eelgrass. Encourage combined docks or more salmon friendly designs that impede less sediment and let more light into water;	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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involve community and youth in eelgrass re-plantings and monitoring studies. (M714, M716, M721										
D. Reconnect and enhance small stream mouths to create pocket estuaries for smaller juvenile Chinook; Reconnect backshore areas Study how railroad design could be altered to restore access to pocket estuaries and backshore areas.										
Basinwide recommendations: Protect stream mouths and wetlands from further degradation through SMPs and CAO regulations. Protect restored areas from impacts from development through buffer requirements and stormwater management programs. (M14, M17, M18)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Implement pilot projects to replace culverts with open bottom culverts or bridges/ trestles wherever possible to allow for sand and gravel, large woody debris, and terrestrial inputs to contribute to the nearshore:	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Big Gulch Culvert Replacement: Replacement of the undersized culvert under the railroad with a trestle system to restore	Big Gulch Pocket Estuary Restoration Project M222	City of Mukilteo	Yes – 1	Yes	No	No	No $20m – total project cost	0	No	Project needs funding

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system connectivity and improve sediment transport into the nearshore. (M222)										
Implement projects to reconnect backshore areas, including:										
□ Willow Creek Daylighting: through existing fuel pier (using box culverts) to improve connectivity with Willow Creek Marsh. Proposed mitigation project for nearby "Edmonds Crossing" development. (M233)	No projects are on the 3 year work program list.	Edmonds, People for Puget Sound	No	No	No	None	No	0	No	Preliminary feasibility study done.
□ Woodway Tidal Lagoon North: Potential culvert improvement project at an inter-tidal lagoon and mud flat where railroad was built offshore south of Willow Creek. (M235)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
□ Deer Creek Culvert Replacement: Enhance the connectivity of Deer Creek and the associated estuarine wetland with the nearshore by replacing two concrete culverts with an oversized culvert or a trestle bridge. Potential Sound Transit mitigation project. (M236)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Combine above restoration efforts with	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

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increased interpretive signage and video documentation for airing on government cable TV; make copies available to neighborhood and stewardship groups; encourage their participation in hands-on projects.										
Work with real estate community to help promote value of creek mouths to both property owners, environment, and shoreline community; encourage property owners to help restore them. Enlist help of neighborhood stewardship associations and Seattle Public Utility's Creek Stewardship program. (M720)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
E. Protect sediment and water quality, esp. near commercial and industrial areas										
Address stormwater impacts (water quality and flows) throughout sub-area and from development near tops of bluffs, by: revising Phase 1 and 2 NPDES permits (consistent with DOE 2001 Stormwater Management Manual), requiring or encouraging LID, retrofitting existing	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to See Cedar River answer.

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developments using natural drainage systems (e.g., SEAStreets). (M19)										
Determine extent to which residential structures along nearshore are on septic systems; determine if these systems are operating properly and if not require that they be fixed. Require that septic systems be inspected at time of sale. (M20)										
• Discourage or prohibit any further filling and dredging in nearshore except for essential public facilities, and where associated with shoreline restoration projects. (M21)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.
Promote boater/sea plane education campaign in order to improve and protect water quality compromised by fuel or toxic compounds from boat repairs, boat and sea plane maintenance. Carry out through signage at marinas, sea plane docks, boat yards, as well as messaging sent with boat/plane license registration. (M728)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	WRIA 8 survey found low level of implementation by WRIA 8 partners, but found high level by the state and NGOs.
• Educate and support businesses, property	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	Being done through NPDES implementation.

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management companies, and HOAs on stormwater best management practices, specifically related to parking lot cleaning, storm drain maintenance and road cleaning. (M730)										
Train groundskeepers and property management companies about water polluting effects of landscape practices. Employ the "pride in workmanship" strategy, by placing signs that list who maintains the landscapes and parking lots along shorelines and the maintenance practices that they employ. (M729)	No projects are on the 3 year work program list.	Unknown	No	No	No	None	No	0	No	No one appears to be advancing these strategies.

GREEN/DUWAMISH WATERSHED – WRIA 9

PROFILE: The Green/Duwamish watershed and central Puget Sound start high in the Cascade Mountain range at the headwaters of the Green River. The upper third of the Green River flows through steeply forested terrain and narrow valleys. The forest lands are harvested for commercial timber subject to an HCP. The River is constrained by the Howard Hanson Dam, built in 1962 for downstream flood control, which is managed by the US Army Corps of Engineers. The River has been the major water supply system for the City of Tacoma since 1913. The White, Black and Cedar Rivers were re-routed away from the Green River between 1900 and 1920. Below the Howard Hanson Dam, the Green flows into the lowland valley through farmland, wooded lots, small towns, where it has been constrained by dikes and levees. The River eventually reaches the City of Seattle suburban areas. The Green River then enters the heavily urban and industrialized lands about 11 miles from the mouth, where it meets the Duwamish River, where the Black and Cedar Rivers used to enter before they were re-routed. The Duwamish River flows through lands that are alternating suburban and industrial as it approaches the east and west waterways of the Delta. Here, the once expansive nearshore mudflats have been paved over and replaced by urban infrastructure (roads, rail lines, large buildings, manufacturing plants and professional sports stadiums), and a major shipping port. Finally, the Duwamish River flows into Puget Sound at Elliot Bay. The watershed also includes many short, independent streams that flow into Puget Sound south of West Pont to Federal Way, and includes Vashon and Maury Islands and their associated shorelines. The watershed has 92 miles of marine shorelines.

Major Industries: Commercial Forestry, retail and residential services, utilities, local government, manufacturing, heavy industry, ports, professional sports, recreation, tribal gaming, commercial aerospace, professional services and banking, land development, warehouses

Important Groups: Muckleshoot Indian Tribe, Tacoma Public Utilities, WDFW, US Army Corps of Engineers, King County, Normandy Park, Auburn, Algona, Black Diamond, Des Moines, Enumclaw, Burien, Covington, Federal Way, Kent, Maple Valley, Renton, SeaTac, Seattle, Tacoma, Tukwila, Port of Seattle, Vashon/Maury Island Community Council, Covington Water District, King Conservation District, WDOE, WDNR, Green/Duwamish Watershed Alliance, Trout Unlimited/Mid-Sound Fisheries Enhancement Group, Steering Committee for the Green/Duwamish and Central Puget Sound, Boeing Company, Plum Creek Timber Company, Master Builders Association, South County Chamber of Commerce Coalition, King County Agricultural Commission, King County Livestock Oversight Committee

Limiting Factors: Limiting factors in the Green and Duwamish River systems include:

- Reduced water quality caused by stormwater runoff, lack of riparian shade, failing septic systems, increased impervious surfaces, wastewater and historic industrial effluent;
- Hydromodification caused by bank hardening levees, clearing f mature streamside vegetation, channel straightening, dredging, filling, loss of side channel and other off-channel habitats, loss of floodplain connectivity and loss of channel migration.
- Loss of habitat in marine nearshore rearing and migratory corridor (loss of tidal mud flats, eelgrass, kelp beds
- Reduced sediment quality (increased presences of metals, organics and other substances in sediments at toxic levels that affect food chain), primarily in the lower Duwamish.
- Alteration of habitat forming processes in nearshore areas (such as the disruption of sediment transport, bluff and bank armoring and development, changes in flow due to river or stream diversions.
- Degraded riparian conditions along shorelines caused by armoring, overwater structures, and residential and urban development.
- Introduction of non-native species caused by discharges from ballast water, packing materials from foreign seafood and aquaculture.

Implementation Assessment - Summary of Key Findings

The original Recovery Plan. In 2005, Water Resource Inventory Area 9 (WRIA 9), the management entity for the Green/Duwamish and Central Puget Sound Watershed, adopted a comprehensive plan for protecting and restoring the watershed and salmon habitat , entitled *Making Our Watershed Fit For a King: Salmon Habitat Plan for the Green/Duwamish and Central Puget Sound Watershed (WRIA 9*). The Watershed Ecosystem Forum is managing implementation of the Recovery Plan. To implement this Plan, the Forum estimates that it requires a dedicated funding mechanisms that will provide an average of $20-30 million each year over 10 years.[16]

In beginning their work to implement the Recovery Plan, WRIA 9 has had the advantage of working with active, engaged group of participants and political leaders who are guided by an extremely well-written Plan. However, they have the disadvantage of attempting to achieve recovery in one of the most highly altered, diked, degraded and urbanized watersheds in the Puget Sound. Some have argued that it is not worth the effort, but yet they persist and have taken significant steps to complete projects over the past five years.

According to the Watershed's *Implementation Guidance for the WRIA 9 Salmon Plan (November, 2006)* Project priorities for the Green/Duwamish and Central Puget Sound Watershed (WRIA 9) were identified based on technical merit and policy considerations and guided by Habitat Plan policy MS-1. In short, the Habitat Plan is designed to increase spawning and rearing habitat in the freshwater areas of the watershed and rearing habitat in the estuary and marine nearshore. Specifically, the Habitat Plan states that:

> The focus of management action implementation efforts in this Habitat Plan will be on the following distinct habitats that are limiting viable salmonid populations in WRIA 9:
>
> • Duwamish Estuary transition zone habitat;
> • Middle Green River, Lower Green River, Duwamish Estuary, Marine Nearshore rearing habitat; and
> • Middle Green and upper Lower Green River spawning habitat.

Because of the importance of the transition zone and the negative effect on habitat recovery efforts upstream if a severe transition zone habitat limitation does exist, 40% of funding for management action recovery efforts will be focused on the transition zone. The remaining 60% of funding for management action recovery efforts will be split 30% for the rearing habitats and 30% for the spawning habitats as described above. This allocation of funding is being applied over the first 10-year period of the Habitat Plan (although annual funding allocations may vary from this distribution) and is subject to change as part of adaptive management. Some of the significant accomplishments that WRIA 9 members have achieved over the past two years include:

Regional Outreach and Leadership

- Convened October 1 workshop to explore ways to better integrate flood protection and salmon habitat recovery in the Lower Green River in response to the leaking abutment at Howard Hanson Dam and the aging levee system;
- WRIA 9 Watershed Ecosystem Forum member and Burien Mayor Joan McGilton served on the Puget Sound Salmon Recovery Council and Puget Sound Partnership – South Central Action Area Caucus Group;
- Analyzed innovative ways to fund investments in watershed health (work will be completed in 2010);
- Supported HB 2199 to make it easier to restore habitat in urban areas by reducing negative regulatory impacts to neighboring property owners;
- Worked with the King Conservation District Board to direct $1.17 million to seven high priority watershed recovery projects;

Restoration Projects:

- Constructed the 2.5 acre shallow water estuarine habitat restoration at North Wind's Weir on the Duwamish in Tukwila
- Constructed the Pautzke levee removal on the Green River east of Auburn
- Controlled highly-invasive knotweed along the lower five miles of Soos Creek

[16] See, 2009 WRIA 9 Funding Mechanism Report, http://www.govlink.org/watersheds/9/pdf/WRIA9_Funding_mechanisms4-15-09.pdf

- Planted 8,500 trees and shrubs along the Middle Green River

Protection and Restoration through Acquisition

- Wallace Acquisition – King County acquired a 39-acre parcel along the Middle Green River to protect fish and wildlife habitat and to facilitate future ecological restoration;
- Bass/Beaver Lake Complex Acquisition – King County acquired 28 acres of undeveloped land in the lake complex to preserve for water quality protection and habitat preservation;
- Anderson Acquisition – King County acquired 6 acres along Newaukum Creek;
- Beaconsfield-on-the-Sound Acquisition – Normandy Park acquired five narrow parcels of nearshore for preservation and eventual bulkhead removal;
- Point Heyer – King County acquired 13 acres with 450 feet of shoreline along the east side of Vashon Island;

Monitoring Effectiveness

- Post-construction monitoring at the Olympic Sculpture Park by the City of Seattle ($30,000 from King Conservation District)
- Pre-construction monitoring at Big Spring Creek by Mid-Sound Fisheries Enhancement Group ($19,000 from King Conservation District)

Today's Work under the Plan.

In the Upper Green River area, as expected based on the WRIA 9 *Implementation Guidance*, no projects are on the 3-year work program at this time and the entire goal for this area will not be advanced until sometime in the future. However, there are 9 specific actions shown in the original Plan for this area of the watershed and WRIA 9 reports that there is some activity in this area (but it is not being led by the WRIA). For example, they note that the Tacoma Public Utilities and US Army Corps of Engineers are conducting major projects, including a fish ladder facility; the TPU's fish haul facility; the Corp's gravel and wood supplementation programs immediately below the Tacoma Headwork's Dam; and removal of some fish barriers in the upper watershed. Given that WRIA 9 will continue to focus in higher priority areas than the Upper Green in the near term, an effort should be made to track activities in this area to ensure that restoration opportunities are consistent with the Plan, other opportunities are not lost or forestalled by other actors, and that protection tools are successful in preventing any further loss of high quality habitat.

In the Middle Green River area: The Recovery Plan proposes 21 specific actions to actions to protect and restore habitat. The Plan relies more on acquisition for protection than regulatory programs. They have completed 1 project, with another project currently in process. The other 19 projects are not on the 3 year work program and are not advancing. In addition, the Forum needs to develop actions to further the Plan's groundwater recharge strategy. It is difficult to know whether any of these 19 projects are planned for the future or whether some have been completed. The Watershed needs to work with NMFS and the PSP to develop a mechanism to document its progress against the entire Plan that can be readily tracked.

In the Lower Green River area, the Recovery Plan proposes 19 specific actions to protect and restore habitat for juvenile salmon. However, only 7 projects are on the 3-year work program. The other 12 projects are not shown and it appears they are *not b*eing advanced. Additionally, there are three strategies for which there are no specific project actions defined. They include: (1) Enhance natural sediment recruitment (esp. spawning gravel) by reconnecting sediment sources to river; (2) Preserve and maintain groundwater inflow from historical White River Channel in Auburn; and (3) Modify Black River Pump Station to improve fish passage.

In the Duwamish Estuary portion of the Recovery Plan, 18 of 21 actions that are included in the Recovery Plan are *not* active or found on the 3-Year Work Program at this time, and it appears they are not advancing. For the 3 projects that are advancing, the total estimated cost of work for the first 3 years is approximately $3.2 million in this area. These amounts appear to be covered by local and SRFB funds. Many more projects not active and remain unfunded.

The Nearshore and Marine areas are the highest priority area for work in the first 10 years of the Recovery Plan. The Plan proposes 31 specific actions (including a mix of policies, programs and capital projects). The bulk of their efforts have been in the capital projects area rather than advancing programs or policies of a programmatic nature. In terms of their performance, 8 restoration projects are complete; 4 are underway (or in early feasibility studies) now, and 19 are not on the 3-year work program

list and it appears they are not advancing at this time. In addition to this work, it appears that the Forum purchased 8 lower tier priority properties under action NS-17. These were not included in the original 31 actions.

In terms of their work on habitat protection through regulatory efforts, Staff describes the effort as an amalgamation of programs and partnerships between the Lead Entity and local governments who are participating in recovery work. The Lead Entity offers technical assistance and support to local governments who are engaged in regulatory updates. They attend public hearings and offer testimony in support of regulations where requested by their partners. They support their partner agencies by drafting grant applications for funding assistance to support local regulatory updates. Staff believes that they have strong support and renewal of the interlocal agreements supporting the WRIA 9 salmon recovery organization because they work together as partners. Without ongoing collaboration at WRIA 9, staff believes that local politics would weaken regulatory protections. Additionally, the staff is seeking funding to perform true floodplain integration planning, which is critical to recovery in the Lower Green River.

Despite all of the activities that are underway, it appears that the Forum is not on pace to achieve its 10-year goals. The watershed has self-reported the same conclusion, especially in the transition zone. This is primarily due to a lack of funding and willing landowners, and their inability to compete with private sector offers to purchase key properties needed for recovery. Notably, their current 3-year work schedule has been cut down to reflect only those projects that are likely to be started or completed within the 3-year window. It is uncertain what the Forum is doing to track the remaining actions set forth in their Recovery Plan or how they plan to move those actions forward. To understand how acutely underfunded this program actually is, the 3-year work program proposes:

- 33 Capital projects (habitat restoration and acquisition for protection and/or restoration) with a total project cost estimated at $39.9 million. Of those 33 projects, only 11 have funding in the amount of $19.5 million, are active at this time. They need an additional $20.4 million to complete all of the capital projects on their 3-year work program list.

- 23 Non-capital programs and projects (including project development for capital restoration projects, habitat protection incentive programs, outreach and education, monitoring, adaptive management, water quality/quantity actions, and lead entity support), with costs estimated for only 6 of those items at a total of $1.1 million.

One positive change that has been made is that the Muckleshoot Tribe, WDFW and Tacoma Public Utilities are now part of the WRIA 9 Implementation Technical Committee. In terms of gaps identified by the NOAA Supplement, the watershed has worked to complete its adaptive management and monitoring plan, and is advancing in the H-Integration process, having almost completed the 5th of 6 steps. Accomplishing the 6th Step of building a verification, effectiveness and accountability system is dependent on additional funding.

In terms of their programmatic actions, the Green-Duwamish is *not* focused on habitat protection through regulation, but does list the creation of several incentive programs (for the removal of failing septic systems on Maury/Vashon Islands; encouraging soft shore armoring; and water conservation incentive programs). The 3-year work program list does not list the status of those programs or whether there is any funding to develop or advance them, so it is difficult to analyze those efforts. Similarly, the 3-year work program lists lead entity coordination, adaptive management and outreach and education actions, but has not provided any project description for any of those items, as status report or stated the estimated budgets and funding for that work (except for the four items).

What do they need to get back on pace?

Funding. Having identified funding as a significant obstacle to implementation of their Plan, WRIA 9 has shown itself to be a regional leader in working to find solutions. In May, 2010 they completed a planning effort to determine how to increase funding for Implementation. As a result, a three-phase strategy to provide dependable and sufficient funding for the WRIA 9 Salmon Habitat Plan was proposed to the WRIA 9 Watershed Forum on May 13, 2010. The Forum discussed and adopted the strategy as outlined below:

Phase 1: Approve an additional, initial funding mechanism for WRIA 9 in 2010. Approve a Flood Control District **levy increase** by November 2010, at a rate of $0.01 per $1,000 of property value raising an estimated $1.68 million per year. The King County Flood Control District could also prioritize existing revenue from its levy be used to invest in flood protection projects that have significant overlap with salmon habitat projects.
Phase 2: Approve an additional funding mechanism to raise $20-30 million/year until phase 3 is accomplished. Legislation would be required to allow the KCFCD levy to be increased by an additional $.10 and for these funds to be dedicated to WRIA 9. Another option is to approve legislation providing WRIA 9 with tax authority. This could enable a new $10 per parcel **special assessment or fee or tax** generating an estimated $1.86 million for WRIA 9. With property tax authority, and $0.20 levy per $1,000 assessed value tax applied to property in WRIA 9 over $20 million could be raised annually.
Phase 3: Pursue creation of an inter-departmental and multi-jurisdictional **Watershed Investment District,** with a combined system of funding mechanisms that will provide the most cost-effective approach for integrated management of all ecosystem services.

"Toward Implementing the WRIA 9 Salmon Habitat Plan," (WRIA 9 Watershed Ecosystem Forum, May, 2010). The Forum needs support from NMFS and the PSP to implement its three-part funding strategy (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts).

Increased Staff to Add Capacity. In addition, the Forum needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward. Their partners also need funding to continue participating in the work.

Additional focus on non-capital programs. The Forum needs funding to support work on non-capital actions, such as the development of protection tools (regulatory and incentive-based), outreach and education, monitoring and implementation of adaptive management efforts.

Tracking Mechanism. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs**.** Although the current informal approach of using the 3-Year Work Programs to updates these changes is working, watershed staff would like to know specifically what is acceptable in terms of documenting strategy or action changes in their Recovery Plan.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: GREEN/DUWAMISH WRIA 9

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
HABITAT STRATEGIES									
UPPER GREEN RIVER									
Facilitate Chinook salmon and Bull Trout access to habitat above the Howard Hansen Dam;	(C) UG-4 Fish passage to and from the Upper Green sub-watershed through a trap and haul system.	Tacoma Public Utilities; USACOE	Yes	No	?	?	1?	No	Project underway; complete?
Remove instream barriers to fish passage;	(C) UG-3 Culvert replacement in Gale and Boundary Creeks near RM 67	City of Tacoma	Yes	2005	?	?	1?	No	Project should be complete?
Protect, restore and enhance habitat in UG mainstem;	(P) U-1 develop a long-term strategy to protect the UG mainstem; (RM 88-67)	Green/ Duwamish Watershed, Corps US Forest Service DNR, Timber Co.'s King County	No	No	No	No	0	No	No one is advancing this strategy
	(P) Policy UG3: initiate discussions with BNSF on solutions for constricting RR tracks on Green River (mutual benefit)	BNSF; Green/ Duwamish Watershed	No	No	No	No	0	No	No one is advancing this strategy
	(C) UG-1 Re-vegetate 2.8 miles of Sunday Creek (at RM 84.1)	Green/ Duwamish Watershed group	No	No	No	No	0	No	No one is advancing this strategy
	(C) UG-2 Improve instream habitat between RM 73-82 by installing LWD	City of Tacoma; USACOE	No	No	No	No	0	No	No one is advancing this strategy
4. Protect and restore natural sediment	(C) UG-5 Restore/ Rehabilitate	US Forest Service;	No	No	No	No	0	No	No one is advancing this

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recruitment by reducing slides and road-borne sediment.	habitat through forest logging road projects	DNR; and Private timber companies							strategy. Watershed staff believe that if we manage this issue better, less water would flow into the Howard Hanson dam, relieving flooding issues downstream.
	(P) Policy UG1: Encourage private and federal forest managers to regularly maintain cost share logging roads.	US Forest Service, DNR, private timber companies	No	No	No	No	0	No	No one is advancing this strategy
	(P) Policy UG2: support forest management and harvest rotation programs that minimize salmon impacts (e.g, Forest and Fish Agreement), and HCP	US Forest Service, DNR, private timber companies	No	No	No	No	0	No	No one is advancing this strategy
MIDDLE GREEN RIVER									
Protect and restore habitat that provides refugia and complexity for juveniles	(P) M4: Side channel reconnection program (RM 45 to 32) See also: (C) MG-1, MG-2, MG-3 and MG-4	? Not specified	No	No	No	None	0	No	This set of actions is not being pursued. (Previously complete?)
	(P) M-1: Protect WQ by creating markets for farm manure (Enumclaw Plateau Dairy Nutrient Management Program)	King Co DNRP, KCD, NRSC, KC Solid Waste, Private dairy farmers	No	No	No	None	0	No	No one is leading this program.
	(P) M3: Middle green river LWD supplementation program	USACOE, Tacoma Public Utilities, King	No	No	No	None	0	No	No one is leading this program.

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
		County, local govts.							
	(P) Policy MG1: When adding LWD, minimize risk to boaters and swimmers	USACOE, Tacoma Public Utilities, King County, other local govts.	No	No	No	None	0	No	No one is leading this program.
	(C) 10 separate Levee Removal and Floodplain reconnection projects: See, MG-9, MG-10, MG-11, MG-12, MG-13, MG-14, MG-15, MG-16, MG-17, and MG-18	Auburn and King County	Yes-1	Yes.	Partial	Phase 1 - $1.5M + $800K + $3.5M (phases A-E) for MG-17. MG-18- $1.4M	3	No	Of the 10 projects, only 1 (MG-17) is funded on the 3 year work program. MG-9, 10, 11 are no longer on the list. MG-18 is complete.
	(C) MG-19: Protect 847 acres of functioning habitat along mainstem river (at seven high- value locations)	Private landowners and Green/ Duwamish watershed	No	No	No	None	No	No	No one is advancing this project.
Enhance natural sediment recruitment (esp. spawning gravel) by reconnecting sediment sources to river	(P) M-2: Middle Green River Gravel Supplementation Program	USACOE Tacoma Public Utilities, King County, local governments	No	No	No	None	0	No	No one is leading this program.
	(C) MG-5: Flaming Geyer Slide Sediment Management at RM 43	Green/ Duwamish project	No	No	No	None	0	No	No one is leading this program.
Protect and restore spawning and rearing habitat in lower Newaukum and Soos Creeks	(C) MG-6, MG-7 and MG-8 restoration projects	King County	Yes	Yes	Yes	MG-8 - $1.1M – Project complete MG-6 - $300K MG-7	2	No	MG-6 underway now. MG-7 is under construction.

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
						$3.043M			
Maintain regional groundwater recharge and base flows in mainstem Green River.	No specific actions identified.	Green/Duwamish Watershed	No	No	No	None	0	No	The watershed needs to identify actions
									NOTE: For this area, project are $12.168 million. More unfunded.
LOWER GREEN RIVER									
Protect and restore habitat that provides refugia and complexity for juveniles (reconnect side channels, off-channel habitat and floodplains)	(P) Policy LG1: Use every opportunity to setback levees and revetments to the MEP. Require habitat rehabilitation in all new and re-developments w/in 200 ft of Green River.	King County	Yes-1	Yes	Yes	$3.038M	1	No	Project is under construction (Riverside Estates River Setback)
	(C) Project LG-2 through LG-19; 18 specific projects to restore Green River and side channels:	Varies by project	Some	6 of 18	Some	Varies by project	6 of 18	No	Only 6 projects are on the 3-year work program. The other 12 projects are not being advanced.
	LG-7 Riverview Park Restoration	City of Kent	Yes-1	Yes	Yes	$3.5M project ACOE $2M KCV $500K Kent $500K SRFB	1	No	Construction funded for 2011
	LG-9 Rosso Nursery off channel project	King County Flood Control Zone District	Yes-1	Yes	Yes	$1.2M	1	No	Project in final design and permitting. Construction in 2012.
	LG-7 Downey Farmstead	Kent, King	Yes-1	Yes	Yes	$1.2M	1	No	Most of funding

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
		County, Green River FCZD							from SRFB; in final design and permitting. Construction in 2012.
	LG-13 Desimone Levee Phases 1-4	King County	Yes-1	Yes	Yes	$2.8M	1	No	May not have all the funding needed. Project in design phase now.
	LG-7 Mill Creek Flood Plan Wetland	Kent	Yes-2	Yes	Yes	$1.5M. Still need $1.4M	1	No	Unclear as to why they are pursuing a lower tier project.
	Mill Creek- Wetland 5K	Auburn	Yes-2	Yes	Yes	$3.5M	1	No	Unclear as to why they are doing a lower tier project. Source of funds unknown.
	LG-10 Mainstem Maintenance Project Boeing Levee Setback	Kent and King County	Yes-1	Yes	Yes	$2.7M	1	No	Design phase now. Construction in 2012.
	Total Cost - $11.5M. Available funding - $5M								
Enhance natural sediment recruitment (esp. spawning gravel) by reconnecting sediment sources to river	None specified.	?	No	No	No	None	0	No	There are no actions proposed to carry out this strategy.
Preserve and maintain groundwater inflow from historical White River Channel in Auburn	None specified.	?	No	No	No	None	0	No	There are no actions proposed to carry out this strategy.
Modify Black River Pump Station to improve fish passage.	No project specified.	?	No	No	No	None	0	No	There are no actions proposed to carry out this strategy.

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
DUWAMISH ESTUARY									
Enhance and expand estuary, esp. shallow subtidal and intertidal habitatas, brackish marshes by restoring dredged, armored and filled areas.	(P) Policy DU4: encourage private landowners to participate in habitat restoration on their land.	Unknown	No	No	No	None	0	No	No one is leading this program.
	(P) Program D-1: Elminate Perennial Pepperweed	Unknown	No	No	No	None	0	No	No one is leading this program.
	(P) Program D-2: Eliminate Common Reed from SR 509 Intertidal wetlands.	Unknown	No	No	No	None	0	No	No one is leading this program.
	(C) 6 separate projects to restore river bank habitat: See Projects Duw-3, Duw-5, Duw-6, Duw-8, Duw-9, Duw-13	Tukwila – Duw-6	Partial	1 of 6	1 of 6	Duw-6 Unknown	1 of 6	No	There's only 1 of 6 projects being advanced. There's no funding identified. Costs unknown. None of the other projects are being advanced.
Enlarge Duwamish estuary transition zone habitat by expanding shallow water and slow water areas.	(P) Program D3: Develop a Transition Zone Habitat Blueprint	Unknown	No	No	No	None	0	No	No one is leading this program.
	(C) 6 separate projects to restore shallow water habitat: *See* Projects Duw-1, Duw-2, Duw-7, Duw-10, Duw-11, Duw-12	Tukwila - Duw-7 King County – Duw-10	Yes-1	Yes for 2 of 6	Partial	Duw-7 Phase 1 complete Phase 2- $300K Duw-10 - $3.2M - Complete	2 of 6	No	One project complete. One underway. Other four are not being advanced.
Enhance natural		Unknown	No	No	No	None	0	No	Watershed needs to

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
sediment processes (transport-delivery)	None specified.								develop actions.
Protect and restore water quality by addressing point and nonpoint pollution sources	(P) Policy DU3: Encourage businesses to address source control issues;	Cities, King County, DOE	No	No	No	None	0	No	No one is leading this program.
	(C) Project DUW-4: Wastewater Pipeline Crossing Retrofit RM8	King County METRO Wastewater	No	No	No	None	0	No	No one is leading this program.
Protect and improve sediment quality through Lower Duwamish Waterway Superfund Cleanup and other efforts.	(P) Policy DU-1: Endorse CERCLA Superfund assessment and cleanup by RPs and regulators (EPA, DOE)	EPA, DOE, Green/Duwamish Watershed Group	No	No	No	None	0	No	No one is leading this program.
	(P) Policy DU- 2: Encourage the Natural Resource Trustees to develop NRDA approaches that allow concurrent habitat restoration and sediment clean up to accelerate work.	EPA, DOE, Green/Duwamish Watershed Group	No	No	No	None	0	No	No one is leading this program.
	(P) Policy DU5: Encourage removal of derelict vessels.	DOE, Coast Guard	No	No	No	None	0	No	No one is leading this action.
	(P) Program D-4: Develop improvement in Dredging/ Sediment use by USACOE at Turning Basin #3	?	No	No	No	None	0	No	No one is leading this action.
									Total Cost of first 3 years - $3.2M Amounts appear to be covered by local and SRFB funds. Many more projects not active and unfunded.
NEARSHORE AREAS (Elliot Bay, Vashon/ Maury Islands)									
Protect, restore or rehabilitate: -Nearshore sediment	(P) Policy NS6: Actively feed beaches, where appropriate, with sediment when supply interrupted by	Unknown	No	No	No	None	0	No	No one is advancing this policy.

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
transport; -Pocket Estuaries; -Sediment Quality esp. in Elliot Bay	bulkheads or armoring.								
	(P) Policy NS3: Support the implementation of the Miller/Walker and Salmon Creek Basin Plan	Burien, Normandy Park, KC, Port of Seattle and WSDOT	No	No	No	None	0	No	This does not appear on the 3-year work program. Is this being implemented?
	(C) 4 separate nearshore restoration projects; See, NS-5 Burien Seahurst Park; NS-9 Mileta Fish Passage; NS-10 VI Ellis Creek Saltmarsh; NS-17 VI and Maury Island	Burien, KC, Vashon and Maury Island	Yes	Yes	Yes	NS-5 - Phase 2 estimate - $5.3M. Local share - $150K NS-9 - $1.2M Costs unknown	2	No	These projects are mostly complete. They performed 8 separate acquisitions of lower priority parcels under NS-17.
	(C) 13 separate restoration/ protection projects for pocket estuaries, feeder bluffs and fill removal; See, NS-6, NS-7, NS-8, NS-11, NS-12, NS-13, NS-14, NS-15, NS-16, NS-18, NS-19, NS-20, NS-21	NS-14 King County NS-11 City of Normandy Park NS-19 King County Roads	Partial	3 of 13	Some	NS-11 $7M NS-14 Unk NS-19 - Unk	3	No	NS-11 – At feasibility stage. Funding source unknown. NS-14 – This is a tier 3 project with no known costs or funding yet. NS-19 – Feasibility stage – costs unknown. Remaining 10 projects are not on the list. NS 12,18,20,21 were on the 2008 list. Why dropped?

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	(P) Policy NS5: Encourage the removal of derelict vessels.	DOE, Coast Guard	No	No	No	None	0	No	No one appears to be advancing this policy. Check with DOE.
	(P) Program N-1: Promote habitat restoration on private property by offering toolbox of nearshore habitat project designs.	Unk	No	No	No	0	0	No	No one is advancing these programs.
	(P) Program N-2: Create a soft armoring technical assistance and cost share program	King County	No	Yes	No	0	0	No	KC is not advancing this program.
	Program N-3 Create and incentive program to encourage multi-family or neighborhood use of docks and boat ramps.	Unk	No	No	No	0	0	No	No one is advancing these programs.
	Program N-4: Create a financial incentive program to replace/repair failing septic systems in Quartermaster Harbor	Unk	No	No	No	0	0	No	No one is advancing these programs.
Protect & expand forage fish spawning areas by maintaining/ increasing high intertidal zone access; maintaining or increasing availability of substrate sizes	(P) Policy NS4: encourage fishery co-managers to consider impacts on salmon when establishing harvest regulations for forage fish (Pacific herring, surf smelt, sand lance)	Co-Managers WDFW, Tribes, NMFS	No	No	No	0	0	No	The watershed is not leading this policy. Check with co-managers to determine if they are doing this on their own.
	Program N-5: create a citizen volunteer forage fish monitoring program.	Multiple stakeholders	No	Yes	No	0	No	No	No one is leading this program.
Protect and increase availability of vegetated shallow nearshore and marsh habitats.	(P) Policy NS1: encourage nearshore property owners to continue replacing creosote pilings and structures; remove obsolete and abandoned facilities with significant amounts of creosote;	Seattle	Yes-1	Yes	Yes	$2.5m Source unknown as yet.	1; Pier 90 Shallow Water Habitat Rehab	No	Project in feasibility design now. Need to determine funding source.
	Policy NS2: Encourage DOE and US	DOE	No	No	No	0	No	No	No one is leading

Chinook Salmon Recovery Plan Element GREEN/ DUWAMISH	Actions to Implement Key Strategies Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader(s)	Priority Set?	Part of Multi-Year Work Program	Staff	Cost Estimate	Total # Projects In progress	Fills Gap?	Comments
	Coast Guard to update oil spill response plans to include BAS.	US Coast Guard Green-Duwamish							this program.
	(C) 4 separate shallow water restoration projects: NS-1 Pier 90; NS-2 Myrtle Edwards Park; NS-3 Seattle Sculpture Park; NS-4 Seattle Waterfront	City of Seattle?	Yes-2	Yes	?	NS-1 $2.5M NS-2 $7.7M NS-3 $2.5M NS-4 $7.7M	2; Remaining appear complete ?	No	Status of these projects is unclear. Believe they are complete.

PUYALLUP/WHITE RIVER BASIN - WRIA 10

PROFILE: The Puyallup/White River Basin was formed 5,600 years ago by volcanic mud flows from Mount Rainier. It is geologically the youngest watershed in Puget Sound, but it is one of the most highly altered systems. The Puyallup and its two tributaries, the White and Carbon Rivers begin at the base of Mount Rainer and empty into Commencement Bay. The White River flows for 68 miles before joining the Puyallup at the City of Sumner. The Carbon River flows from the Carbon glacier to its confluence with the Puyallup River near Orting. South Prairie Creek, a major tributary to the Carbon River, is considered one of the most productive salmon reaches used by Chinook for spawning habitat for natural production in the basin. Most of the watershed is within Pierce County, which includes dozens of cities, towns and the state's third largest city, Tacoma. The basin is one of the earliest areas to be settled by homesteaders back in the 1850s. The White River has undergone pronounced changes since the beginning of European settlement. Until the early part of this century, it flowed north from Auburn into the Green River. A smaller channel, the Stuck River, flowed south from Auburn to Sumner into the Puyallup River. Flooding on November 14, 1906 diverted the entire flow of the White River into the Stuck River channel where it has remained. Most of the upper White River watershed is managed for timber production and has been logged for the past 100 years. Intensive logging began in 1945. Logging and logging-related activities throughout the upper watershed have led to slope-stability problems and increased sediment loads in many non-glacial tributaries. The basin includes Commencement Bay, which is highly contaminated from prior industrial discharges and urban runoff. In total, the basin drains an area of 1,065 square miles and has over 728 miles of river and streams.

Major Industries: Heavy and commercial industry, shipping, lumber mills, retail sales, residential services, urban development, US Air Force, US Army, commercial forestry, energy production, colleges and universities, hospitals and health care.

Important Groups: Muckleshoot Tribe, Puyallup Tribe, Pierce County, US Army - Fort Lewis, US Air Force - McChord AFB, US Army Corps of Engineers, Puget Sound Energy, Port of Tacoma, Cities of Tacoma, Fife, Buckley, Enumclaw, Sumner, Auburn, WDFW, WDOE, US EPA, US Forest Service

Limiting Factors:[17]

Puyallup River - The performance of Puyallup River Chinook is poor. The most significant habitat factors causing this and the associated life stage functions are as follows: Extensive loss of mainstem lowland floodplain off-channel habitat for fry colonization and juvenile rearing; Extensive loss of estuarine habitat and habitat diversity for salinity adaptation and juvenile rearing; and Poor screening on the Electron diversion causes large losses of downstream migrant Chinook.

White River - The performance of White River Chinook is also poor. Alteration of natural flow regimes and the loss of off-channel habitat are the primary causes of poor VSP parameters for Chinook. Scenario modeling in the EDT phase 2 analysis indicated that the most significant habitat factors were the flow modifications produced by the PSE flow diversion to Lake Tapps, and by operation of the Mud Mountain Dam flood control facility. For Chinook produced in the lower White, the next most significant habitat factor was the loss of large woody debris, largely resulting from snagging operations at the Mud Mountain Dam facility. After the flow modification actions, seven of the top ten ranked actions for fish produced in the upper White River involved actions in the upper drainage. The top ranked action of these seven is Greenwater River LWD placement. A high sediment load was also identified as a significant habitat factor in the Greenwater River and Huckleberry Creek. Improved road management would help address the currently high sediment load.

In addition to the Greenwater River and Huckleberry Creek, the Clearwater River was identified in the EDT Phase 2 analysis as a high priority for protection and restoration for Chinook and Coho. Primary degraded environmental factors in the Clearwater include reduced habitat diversity, reduced key habitat quantity, and increased sediment load. An increase in the amount of large woody debris, improvement in riparian condition, and improved road management would likely address the degraded habitat conditions. Overall, the results indicate that the greatest benefits to upper river salmonids will tend to be achieved by actions conducted upstream of Mud Mountain Dam.

Common Elements to White and Puyallup

For both the Puyallup and lower White River Chinook, except as noted, the principal attribute classes or factors that rank highest for Chinook restoration benefit are generally channel (or substrate) stability and habitat diversity in the freshwater areas of highest importance to restoration. This reflects the benefit that would occur if side channels and backwaters were reopened and restored for use, primarily for fry colonization and juvenile rearing. These types of actions seem to be more beneficial for Puyallup Chinook than for White River Chinook, perhaps because of the dominant effect of hydro-modifications on White River fish.

Hydropower: The basin is home to three hydroelectric facilitie: The Electron Dam operated by Puget Sound Energy located on the Upper Puyallup River, the Mud Mountain Dam, operated by the US Army Corps of Engineers to regulate flooding downstream, located five miles upstream from the City of Buckley on the White River, and the White River Hydroelectric Facility operated by Puget Sound Energy, located downstream of the Mud Mountain Dam between Enumclaw and Buckley. This facility diverts 2,000 cf per second from the White River through a canal and flume system into Lake Tapps.

Implementation Assessment - Summary of Key Findings

[17] Source, WRIA 10 Salmon Habitat Protection and Restoration Strategy.

The original Recovery Plan. Pierce County developed the WRIA 10 Basin's habitat Recovery Plan using EDT modeling. The Puyallup Tribe and WDFW participated in analyses and developed management actions to support salmon recovery. At that time, the co-managers were revising the White River Chinook Recovery Plan published in 1996, and submitted a Recovery Plan for Puyallup River Chinook. When the Puget Sound Chinook Salmon Recovery Plan was approved, the Co-managers and the County were just beginning to work together to determine the compatibility of their two respective plans within an all-H context. The Lead Entity's published Salmon Habitat Protection and Restoration Strategy (Feburary, 2004) was somewhat incomplete and did not contain an easily identifiable set of strategies and actions that could be catalogued and compared with current strategies. Accordingly, this assessment was prepared by compiling strategies and actions from within Chapters 5 and Chapter 7 of the WRIA 10 Plan, along with the summary of actions identified in Chapter 5 of the Puget Sound Chinook Salmon Recovery Plan.

Today's efforts. The watershed has been actively working at restoration since the time of the ESA listing. Some of their capital restoration projects that have been completed include:

- Hauff property restoration
- Olympic View Triangle/Commencement Bay restoration
- Maury Creek
- 7020/7021 Barrier Removal
- Foothills Trail Culvert Replacement
- Champion 21 Road Abandonment
- Sportsman Club Oxbow Reconnection
- South Prairie Creek Action Plan
- Lower Boise Creek Design
- S. Prairie Creek Acquisition Restoration (02-1584)
- S. Prairie Creek Acquisition Phase 3
- Birch Street Barrier Removal on Hybelos Creek
- Puyallup River Watershed Revegetation
- Bee Spit Honey Acquisition Restoration
- South Fork Ohop Creek
- Lower Carbon/Puyallup River Habitat Land Acquisition
- 96th Street Oxbow Project
- Puyallup River Setback Levee
- June Creek Culvert Replacement
- White River Pipeline Crossing
- Coal Mine Creek Fish Passage Project

Despite these successes, the watershed reports that they are not on pace to meet 10-year goals.

Five years later, the two separate plans of the Co-Managers and Lead Entity have yet to be combined and approved by NMFS into a single, unified set of strategies and prioritized actions across WRIAs 10 and 12. Although the watershed is actively pursuing work across all of its top priorities[18], sponsorship capacity to implement those project priorities is limited, and the Lead Entity does not expect to receive project proposals in the near-term. Accordingly, the Lead Entity has stated that it will support other important projects that protect and/or improve habitat in presently productive streams or that correct barriers to high quality habitat. Studies to identify high-priority levee setback and/or estuarine projects, assess their feasibility and prepare preliminary designs will also be high priorities. In examining the Recovery Plan against the current 3-year work program, it is easy to see that most of the projects they have planned and would like to implement are not prioritized. Funding and project sponsor capacity appears to be a major factor in limiting their efforts to implement the Plan.[19] In addition, the RITT has stated that WRIAs 10 and 12 need to set recovery goals.

[18]Their top project priorities are: (1) restoring floodplain processes and off-channel habitat in the Puyallup, White and Carbon rivers and estuary, (2) preserving and restoring highly productive tributaries; (3) restoring the Puyallup estuary and marine nearshore; and (4) fish screening at the Electron Dam bypass.

[19]We note that this Watershed provides an example of the peculiar way in which salmon recovery is being implemented across the ESU. The scope and scale of the actions necessary to recovery Puget Sound Chinook in such a highly diverse, largely altered or urbanized and vast area are tremendous. The only other project that we know of that have this level of complexity is perhaps the construction of a major highway or rail system across a vast, diverse landscape. With those types of public works projects, the work is centrally organized, prioritized, funded, sequenced, constructed and monitored. The public works agency drives the work and oversees its implementation (usually through contracts or by its own work force). Here, however, the work is identified by the watershed group and sometimes prioritized and sequenced (but not always). The projects/actions are placed on a 3-year work program list and each watershed advertises a Request for Proposals to construct the work. If they do not receive proposals, the work doesn't advance. As such, their progress is largely driven by groups outside and dependent on scarce funding sources. We find this type of approach to be peculiar, because it places completion of the plan in the hands of project proponents, rather than on the WRIA/Lead Entity itself.

In terms of programmatic actions, the Recovery Plan calls for outreach and education program which are underway. The plan also calls on the watershed to engage in monitoring and adaptive management, which is not happening at this time. It also calls for the development of 3-5 instream flow projects to address low flows and for a project to address changes in flow management at Mud Mountain Dam and the PSE Bypass. These projects are not being advanced. Finally, the plan calls for an increase in protection and restoration in important tributaries (South Prairie, Boise and Huckleberry Creeks, and Greenwater and Clearwater Rivers). Apart from the list of capital projects underway, there does not appear to be any watershed actions targeted at improving protection for such creeks (except perhaps where the Pierce County SMP update results in an increase in protection). No incentive programs are under development that would increase habitat protection. In sum, significant gaps remain in their programmatic efforts against the original strategies set forth in the Recovery Plan.

In terms of the funding, WRIA 10 has identified the following projects and programs to be accomplished in the next 3 years:

- **37Capital projects** (mainly habitat restoration), plus 3 additional hatchery capital projects with a total project cost estimated at **$96.4 million**. They have identified $8.2 million in funding sources, and will need to find an additional $88.2 million to complete all of the capital projects;

- **22 Non-capital projects** (including project development for capital restoration projects, habitat protection programs, outreach and education, watershed coordination, and nearshore monitoring programs), with a total cost estimated at **$4.7 million.** They have secured funding for $330,000 which covers only 2 outreach/education programs and the Lead Entity staff. There remains a gap of $4.3 million to advance the remaining work.

WRIA 10/12 has a combined PSAR allocation for the 2009-11 biennium in the amount of $2-3 million. Staff believes that they need a programmatic, landscape-scale approach to funding restoration projects or they will not achieve their goals. Piecemeal funding results in watersheds being opportunistic in their restoration work. Similarly, staff noted that they simply cannot do one type of habitat restoration, because the salmon need all types of habitat throughout their life stages. Salmon need a web of connected, functioning habitat. Staff feels that if they don't restore all types of habitat across the landscape, investments in partial restoration won't be enough.

As a result, their greatest challenge continues to be the funding of high-cost, multi-year restoration actions. The watershed also reports to additional, high priority challenges: (1) that working with Burlington Northern Santa Fe Railroad to address tracks along the shoreline, and (2) working with all stakeholders to integrate and prioritize the strategies and goals under a single unified plan.

In terms of staffing, Staff observed that funding for Lead Entity staffing has not increased in the past 10 years. Pierce County has shifted staff from salmon recovery efforts as a result of new leadership and decreased revenues at the local government level. Staff notes that they are unable to advocate for protection in a political setting where they are housed within a local government agency.

What do they need to get back on pace?

Funding. The watershed needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, multi-year levee setback projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts). Staff strongly believes that the acquisition of high quality habitat is the cheapest way to achieve habitat protection. They support the SRFB funding program and believe that there is a synergy between flood control project funding and salmon recovery restoration funding. Staff suggests that the SRFB fund multi-purpose flood control/salmon restoration projects. Like others, this watershed raised the issue of matching grant funds as a significant problem for the Lead Entities.

Staff Capacity. In addition, the Lead Entity needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward. Staff also request support from the region in recognizing their partners who are contributing greatly to recovery (e.g.,

such as the City of Orting - through levy setbacks, and Puyallup and Sumner, who are interested in levy setback projects but lack funding to do them). In terms of their specific staffing needs, WRIA 10/12 need:

- 1.0 FTE – Program Director – Leads the entire local effort and works across the region as needed.
- 1.0 FTE – Public outreach and education/marketing coordinator
- 1.0 FTE – Technical Staff (Biologist) to participate in H-integration and TAG work, and Adaptive Management
- .75 FTE – Clerical Support to maintain the Habitat Work Schedule, and provide general support (minutes, meeting coordination, etc.)
- .50 FTE – South Sound Regional Coordinator – to perform work across South Sound with other watersheds.

The staff was complimentary of the role that the PSP staff play in supporting their watersheds and ensuring that their local implementation organization was continuing. The staff did note that there was growing pressure on each Lead Entity to expand their roles into Puget Sound recovery work while they are struggling to maintain their operations with shrinking staff and infrastructure.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Prioritization, Sequencing and H-Integration. WRIA 10/12 need support to develop an integrated, comprehensive strategy for recovery across all-H's, which includes a prioritized set of actions. They need support to continue the Lead Entity and Co-manager conversations relating to population goals and hatchery management. They also need to set recovery goals for both watersheds across all-H's. They have sequenced their work per the AHA model and EDT analysis, but they need coordination across the H's. Staff at the watershed believes that these processes should be more transparent to the public and that NOAA should be involved in the discussions.

Adaptive Management. WRIA 10/12 currently lacks the funding and staff capacity (time, enough staff) and perhaps the desire to engage in adaptive management planning. They are waiting for the development of the RITT-led Adaptive Management Plan, which will guide their efforts. However, this work was flagged by NOAA as a critical gap in the entire Recovery Plan. As such, NOAA and/or the PSP may want to consider providing them with additional resources to get this work moving.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: PUYALLUP /WHITE – WRIA 10/12

Chinook Salmon Recovery Plan Element PUYALLUP/ WHITE RIVER BASIN	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
HABITAT STRATEGIES										
Puyallup River Chinook										
Overall Strategy: Address habitat diversity, channel stability and sediment load, as well as barriers to fish migration for both adults and juveniles.										
Restore Puyallup mainstem downstream of Orting (to estuary), the estuary, and the diversion screens associated with the Electron Dam.	See projects below.									
Create off-channel estuarine habitat	Acquisition, restoration Puyallup Estuary (RM 0 – 6.0)									
Setback levees, floodplain reconnection	Acquisition and restoration Puyallup River (RM 6.0 to 22)	Pierce County SWM	1	Yes	No	Some	Yes $4.7M	1	No	RM 17.8-18.4 Active project in the design phase.
	Union Pacific Levee Setback RM 2.6 – 3.0 Acquisition for restoration project - 30 acres	Pierce County, PTF and Port of Tacoma	1	Yes	No	No	$40-80m	1	No	This is a project of regional significance. It Needs funding.
Setback levees, floodplain	Acquisition and restoration Carbon River (RM 0 to 10)	Unknown	Unrated	Not yet. Projects are being created from levee set back feasibility analysis.	No	No	TBD	?	No	32 levee setbacks are being studied on all 3 rivers. No specific Carbon River levee setback in miles 0-10 is on the list yet.
Restore Estuary and Floodplain Function	Restore Estuary and floodplain habitat connectivity in the lower	Unknown	No	No	No	No	0	0	No	This project is not on the 3 year work program.

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	Puyallup, lower White and lower Carbon Rivers									
Fish Passage	Puyallup River at Electron Dam (RM 31.2) Remove, ameliorate fish migration barriers	Puget Sound Energy, FERC, SPSSEG, Puyallup Tribe	1	Yes	No	Yes	No $6 million est. budget	1	No	This project is to install fish screens at Electron Dam diversion.
Protect the South Prairie Creek mainstem and estuary	Perform Levee Setback Feasibility Study.	Pierce County	Yes 2005	No	No	0	0	0	No	This project is not on the 3 year work program. Is this project complete?
	Identify and Prioritize levee setback projects.	USACOE, PSE, FEMA, Pierce County, Cities, Others	Yes 2005	No	No	0	0	0	No	This project is not on the 3 year work program. Is this project complete?
	Levee Setbacks	Old Soldiers Home levee setback project	Yes 2005	Yes 2005-2006	No	0	0	0	No	This project is not on the 3 year work program. Is this project complete?
New Capital Projects	South Prairie Creek Restoration project (RM 2.0-4.6)	Pierce County	Unrated	Yes	No	Yes	Yes $690K	1	No	Underway. 2 miles riparian restoration.
	South Prairie Creek Japanese Knot Weed Control Phase 1 (RM 0-10)	Pierce County	Unrated	Yes	No	Yes	Yes $265K	1	No	Conceptual Phase Survey and control invasive weed.
New Acquisition for	South Prairie Creek	Pierce	1	Yes	No	No	No	1	No	This project will protect

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Protection	(RM 0-8.0)	County Water programs, CLC					$800K			62-120 acres of the most important salmon spawning areas in the Puyallup watershed. No funding is available.
White River Spring Chinook										
Address habitat diversity, channel stability, sediment loading, habitat quantity, and flow conditions.	Boise Creek Restoration (RM 1-3)	King County	No	Yes	No	Yes	No $1.5M	Multiple; 80 acres of riparian habitat and 10,560 linear feet.	No	Purchase conservation easements to restore Boise Creek. Needs funding. Land owner outreach.
	White River Corridor Restoration (Pacific) Phase 1 Abernathy	King County	Unrated	Yes	No	Some;	No $1.05M 3 parcels	1	No	Needs funding – In scoping and appraisal phase
	White River Corridor Restoration (Pacific) Phase 2 - Setback Berm; Acquire 14 houses and restore 1,000 feet of buffer.	King County	New	Yes	No	No Conceptual	No $7.0M	1	No	This project needs funding and landowner willingness.
LWD	Restore riparian LWD in the Greenwater River and Huckleberry Creek	U.S. Forest Service, SPSSEG, Puyallup Tribe	Unrated	Yes	No	No	No $1.5M	1	No	Several attempts to begin feasibility/ planning have failed. Needs funding.
	Restore riparian LWD in Boise Creek	Pierce County	Yes	Yes	No	Yes	Yes?	2		Complete?
Water Quality	Support TMDL Implementation Plan	Pierce County	No 2010; Was yes in 2005	No	Yes	No	0	0	No	There are no actions on the 3 year work program to implement this strategy. Is this program complete?

Chinook Salmon Recovery Plan Element PUYALLUP/ WHITE RIVER BASIN	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Setback levees, floodplain reconnection	Acquisition and Restoration White River (RM 0 to 10)	King County	Unrated	Yes	No	No	Est. $2.0M annually $6.0 M total for 3 year period.	0	No	Purchase up to 60 Tier-one parcels according to ecological priorities RM 0-10 may be on list but unclear. No funding available.
New	Boise Creek segment restoration	PTP, PRP, King County, Enumclaw	1	Yes	No	Yes	Yes $2.2M	1	No	None This is a new project that was not on the original Recovery Plan list.
	Boise Creek Fish Passage Project - In scoping permit phase.	King County, Puyallup Tribe	1	Yes	No	Partial	No $550K	1	No	This project needs more funding to go forward. It will provide fish passage above the golf course.
Hylebos Creek										
Address habitat diversity and flow conditions	Restore lower mainstem below the forks and lower reaches of the West Fork.									
	Hylebos Creek Nearshore restoration (NRDA alternative site mitigation project)	Port of Tacoma, City of Tacoma	Unrated	Yea	No	No	No $1.0M	0	No	It appears there is no funding for this project. It was planned for construction in 2010.
	East Hylebos Ravine Habitat Restoration - Scoping phase	Friends of the Hylebos	Unrated	Yes	No	No	No $750K	0	No	Needs Funding.
	Protect High priority areas including: upper West Fork, followed by the lower West Fork	Friends of the Hylebos	Unrated	Yes	No	No	No $1.5M 35 acre acquisition	0	No	There is no funding for this set of projects. Conceptual phase only
	Hauff Habitat Restoration	Friends								Project Complete

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	project	of the Hylebos								
	Restoration Hylebos Mouth WSDOT Property Tidal mudflats	Friends of the Hylebos	Unrated	Yes	No	No	No $100K in design phase	0	No	Needs funding
Chambers-Clover River										
Address habitat Diversity										
Restore Chambers Creek, then Chambers Creek Bay	Chambers Bay Estuarine and Riparian Enhancement Project	SPSSEG	Unrated	Yes	No	Yes	No? $2.1M	1	No	Marked in orange. Unclear as to whether it is funded.
	Chamber beach Reconstruction and Riparian Enhancement	SPSSEG	Unrated	Yes	No	Yes Feasibility stage	No? $1.7M	1	No	Marked in orange. Unclear as to whether it is funded.
Protect habitat from degradation	Protect mainstem areas of Chambers Creek and, when normalizing for reach length, Chambers Bay	Unknown	No	No	No	No	0	0	No	No projects on the 3 year work program to advance this strategy.
H-Integration	Integrate the habitat, harvest and hatchery strategies and actions.	Pierce County Lead Entity	Yes	Not on the 3-year list	Yes	Some	Some (amount not specified)	1	No	The watershed reports that they are making some progress toward h-integration and AHA modeling. A portion of the Lead entity's capacity funds have been allocated to this work.
Monitoring and Adaptive Management	This work is not underway.	Lead Entity	No	No	YES	No	0	0	YES	No work underway. WRIA 10/12 reports that they are awaiting the development of the RITT led regional AMM plan;

Chinook Salmon Recovery Plan Element PUYALLUP/ WHITE RIVER BASIN	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
										and need additional funds to engage in the work. They do point to 7 stock monitoring projects that are underway for VSP purposes.
Water Quantity	Develop and propose implementation of 3-5 projects that will address low flow problems.	Unknown	No	No	No	No	0	0	No	No projects on the 3 year work program to advance this strategy.
	Changes in flow management at Mud Mountain Dam and PSE Bypass	Unknown	No	No	No	No	0	0	No	No projects on the 3 year work program to advance this strategy.
Protect highly productive habitat in Tributaries	Increase protection and restoration in South Prairie Creek, Boise Creek, Greenwater River, Huckleberry Creek, and the Clearwater River.		No	No	No	No	0	0	No	There are no actions on the 3-year project list to implement habitat protection; (except for capital restoration & acquisition projects listed above)
Outreach and Education	Use electronic and print media to educate public and certain public service groups about salmon habitat recovery and restoration strategies.	Pierce County	Unrated	Yes	No	No	No $80K ($30K annually)	0	No	This project needs funding.
	Prepare handouts explaining SRFB process.	Pierce County	No	No	No	No	0	0	No	No projects on the 3 year work program to advance this strategy.
	Use leaders to inform	CAC	No	No	No	No	0	0	No	No projects on the 3

Chinook Salmon Recovery Plan Element PUYALLUP/ WHITE RIVER BASIN	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
	media and speak to groups about salmon recovery efforts.	chair, TAG chair and the Lead Entity Coordinator								year work program to advance this strategy.
	Include salmon recovery outreach in their annual work plans (include K-12 universities)	Education Committee of the PRWC and the CCWC	PCRS-SYTI Program	Yes	No	Yes	Yes $20K annually	1	No	May need funding?
	Misc. other programs: CHB Pollution Hotline, CHB Bay Watcher Program, Salmon Recovery Outreach, White River Watershed Stewardship Program	Pierce County, CHB, SPSSEG, USFS	Unrated	Yes	No	Some	Partial Total Cost = $460K $150K available;	5	No	These program don't exactly match the original plan goals but they do cover important public outreach needs. Not all are funded.
Additional Capital Projects	There are 14 additional capital restoration and acquisition projects on the 3 year work program list that were not described as key strategies on the original plan.	Various	No	Yes	No	Some	Partial Total cost $24.157M gap of $16.107M	14	No	This group of projects is not ranked for priority and is significantly underfunded.

NISQUALLY RIVER WATERSHED – WRIA 11

PROFILE: As one of the least developed rivers in southern Puget Sound, the Nisqually links the snows and ice of Nisqually Glacier on Washington's highest peak, Mount Rainier, to the marine waters of Puget Sound. The Nisqually journeys from sub-alpine meadows and old-growth Douglas-fir forests through foothills of timberlands, across lowland prairies to estuarine marshes and tidal mudflats. Its watershed encompasses a broad range of land uses and jurisdictions - rural communities, national and state parks and forests, public and private timberlands, municipal hydropower dams and reservoirs, farmlands, the Nisqually Indian Reservation, Fort Lewis Military Reservation and the Nisqually National Wildlife Refuge. It is the only watershed that begins in a National Park and ends in a National Wildlife Refuge. It also has a military base that has been nationally recognized for its unique focus on protecting wildlife, native plants and fish. The lower portion of the Nisqually River is considered to be some of the best remaining salmon habitat in the region. Between river miles (RM) 4.5 and 12.7, the river meanders freely across the valley floor; large woody debris is present in healthy amounts, and there is a healthy riparian zone. The Nisqually River also has the largest undeveloped delta in Puget Sound. Protecting existing conditions is a high priority for salmon recovery planners in the Nisqually river basin. The Nisqually watershed supports one threatened Chinook population and numerous other species of salmon, including a unique late-season returning population of chum. Land use and ownership patterns in the upper watershed is 78% forestry and recreation, 18% national park lands, 2% agriculture and 2% urban. In the lower watershed, land use is 22% forestry, 18% forest/prairie (military-owned), 4% agriculture, 49% rural/residential, 3% residential, and 2% urban.

The Nisqually Recovery Team set a goal to protect 90% of 84 miles of mainstem core habitat. 68% is already in protected status. Over the last 30 years, significant advances have been made to protect and restore the watershed. Seventy percent of the mainstem river is in protected status under federal, state, local and private agreements. In recent years, the Nisqually Tribe acquired 410 acres of the Braget family farm, most in the lowlands and estuary of the Nisqually. The purchase will result in restoration of all diked habitat on the farm. More than 30 acres of the farm were restored as tidal habitat when a dike was breached in November 2002, and the Tribe plans to restore an additional 110 acres on the property within the next year. In addition, the Nisqually Wildlife Refuge completed its Comprehensive Conservation Plan which includes plans to restore an additional 700 acres of estuarine habitat in the Nisqually Delta.

Major Industries: Commercial forestry, tourism, recreation, US Army base (Ft. Lewis) and rural residential services.

Important Groups: Nisqually Basin Land Trust, Lewis County, Pierce County, Thurston County, National Marine Fisheries Service, WA Dept. of Fish & Wildlife , WA Parks & Recreation Commission, WA Dept. of Natural Resources, Nisqually Indian Tribe, Citizen's Advisory Committee, WA Dept. of Ecology, WA Conservation Commission, UW Pack Forest, US Army at Fort Lewis, Nisqually National Wildlife Refuge, Mt. Rainier National Park, Tacoma Public Utilities, The Cities of Centralia, Eatonville, Roy, and Yelm, Gifford Pinchot National Forest and Northwest Indian Fisheries Commission

Limiting Factors: The upper portions of the watershed that have been in forestry production were not managed to protect the streams. Impacts included loss of mature forest riparian buffers and severe sedimentation problems from forestry road construction. Past agricultural practices included the ditching and straightening of streams and draining of wetlands including much of the lower four miles of Ohop Creek and the diking of most of the estuarine wetlands to create farmland. Encroaching urbanization has resulted in bank hardening and removal of riparian buffers at certain locations along the mainstem Nisqually, Mashel River and Ohop Creek limiting their ability to migrate within their floodplains. There are four significant habitat factors continuing to limit the Chinook population: (1) The I-5 Bridge and placement of fill on which portions of the Interstate highway runs through the lower Nisqually restricts natural channel migration and limits the upper extent of the estuary; (2) The Centralia Diversion Dam; (3) Human population growth is a concern especially in the Mashel River and Ohop Creek tributary watersheds, if in the future, portions of these watersheds convert to a high percentage of urban or rural-residential use; and (4) Development along the nearshore environment has resulted in significant hardening of the shoreline.

Harvest: Historically high rates of harvest have increased since the turn of the century, with fishing in unconstrained, mixed-stock sport and commercial fisheries, which greatly impacted Nisqually River Chinook salmon. The Nisqually Chinook Recovery Team's action plan includes harvest and hatchery management measures. To ensure a sustainable harvest that also meets harvest goals for treaty and non-treaty fisheries, the goal is to allow enough Chinook to escape harvest that 1,100 Chinook will spawn naturally in the river. Additionally, guidelines have been developed for operating hatcheries to minimize negative impacts of hatchery fish on natural spawners

Hatcheries: Hatcheries are also an important factor in understanding the current status of Chinook in the Nisqually. The need to preserve the genetic composition of native Chinook was completely ignored in early hatchery programs. From 1942 to 1970, a total of 8.4 million juvenile hatchery Chinook were introduced from other Puget Sound basins and released into the Nisqually Basin. From 1971 to1990 a total of 22.5 million hatchery Chinook were out-planted in the basin. In recent years, there have been efforts to address these hatchery issues. The Nisqually Indian Tribe has begun to reform its hatchery enhancement efforts. The Tribe operates two hatcheries in the basin: one at Kalama Creek and one at Clear Creek. Each of these facilities includes an adult trap for returning broodstock. Returning Chinook from both facilities are known to contribute to natural spawning. The objective for fall Chinook escapement to the spawning grounds in excess of 1,100has been met for five out of the last six years. In 2004, 2,600 Chinook returned to the river, which is described as "drastically up from 400 a decade ago" (NWIFC NewsNet 4-5-05). Additionally, the Nisqually Tribe is working with the Hatchery Scientific Review Group (HSRG) to design a program to reform hatchery practices in the next 12 years.

Hydropower: In the 1900s, two major hydroelectric projects were constructed in the basin: the City of Centralia's Diversion Dam, and the City of Tacoma's Nisqually Hydroelectric Project at Alder LaGrande. Instream flows were set for the mainstem Nisqually River in 1985 through the FERC relicensing process for the river's hydroelectric facilities. The instream flows were established based on the needs for Chinook and steelhead during spawning and for steelhead juveniles during summer rearing. The flow settings also accommodate the needs of other species. In addition, the tributary instream flows in the basin are regularly being met, except in the Mashel River near Eatonville.

Implementation Assessment - Summary of Key Findings

The Nisqually River Watershed story is one of significant success, but more work remains. They have largely completed their restoration work in the estuary and mainstem river areas. They have restored 902 acres in the estuary and have only 33 acres remaining. In the mainstem river, they have protected 73.6 percent of the river through acquisitions and have only 16.4 percent remaining to complete. In the Ohop Creek area, they have restored 5 miles of riparian habitat with one mile left to complete. In the Mashel River, they have restored 1.5 miles and have 1.9 miles remaining.

With all of this success, the watershed does have one significant area of concern: an inability to protect nearshore habitat outside of WRIA 11. Given that these areas are governed and used by many different actors and laws at the federal, state and local level, feature high-priced real estate and are regulated using tools that typically balance multiple, often competing goals, increasing the level of protection in the nearshore area is a complex task and will likely take a regional approach.

Another area of concern that we note is the long-term effectiveness of the habitat protection tools that are in place or that are being updated, in areas where WRIA 11 has not purchased property to protect it. There is no mention of the watershed's role in ensuring that the regulatory and/or incentive programs that are being used or developed to protect habitat are actually achieving the desired level of habitat protection. This is an area that NOAA should address in working with WRIA 11 in the future.

In terms of their habitat restoration and protection work, WRIA 11 has identified the following projects and programs that still need to be accomplished:

- **65 Capital projects** (mainly habitat restoration and acquisition for protection or restoration projects) with a total project cost estimated at **$80 million**. They have identified $16.8 million in funding sources, with a funding gap of $63.2 million.

- **54 Non-capital programs and projects** (including project development for capital restoration projects, habitat protection programs, outreach and education, and stormwater programs), with a total cost estimated at **$13.7 million**. The 3-Year Work Program shows no funding for these programs.

In terms of hatcheries and harvest, WRIA 11 has determined that they need to make changes to their hatchery and harvest practices to reach their recovery goals. Those changes are detailed in the 2010 Three Year Work Program narrative document. In short, their highest stock management priority is to develop a natural origin stock that is locally adapted to the Nisqually watershed. To do this, the Nisqually Tribe has determined that it will develop a stepping stone integrated hatchery program to begin reversing the gene flow into its Chinook stock. Major elements of this effort will be the construction of a seasonal mainstem weir to control straying of hatchery Chinook to the spawning grounds. This weir will be managed in combination with a stepped reduction in harvest of natural origin Chinook. The Tribe also plans to begin experimenting with new, selective fishing techniques for the tribal fishery in order to maximize harvest of hatchery fish.

The watershed is also planning to complete its adaptive management framework in 2010, which will address a key gap that the NOAA Supplement flagged for the entire ESU.

Nisqually is on pace to achieve their 10-year goals, if additional funding can be secured to complete their work across the H's, and to ensure that staff capacity exists to oversee the work.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: NISQUALLY

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
HABITAT STRATEGIES										
1. Habitat Protection and Enhancement Actions										
1.1. Protection Habitat in Critical Areas ***1.1.1 Acquisition and/or removal of development rights on critical private properties***										
1.1.1.1 Non-Public estuarine	Southsound Nearshore Protection Project	Nisqually Land Trust	2	Yes	No	No	No Cost estimate $3M	0	No	No specific sites have been identified. Cost estimate is preliminary. Most of the needed work is outside this watershed.
	Ketron Island Project	Nisqually Land Trust, Nisqually Tribe	2	Yes	No	No	$2.5M PSAR?	1	No	Project is in scoping phase.
1.1.1.2 Mainstem shoreline habitat	McCallister Creek	Nisqually Wildlife Refuge	1	Yes	No	No	TBD	1	No	Conceptual stage only. Part of Nisqually Wildlife Refuge Comp. Plan
	Purchase .05 acres per yr.	NLT	1	Yes	No	No	No $2.5m est	Several	No	Various projects; No funding yet
	Wilcox Area Protection Project 250 acres	NLT	1	Yes	No	No	No. $750K est. not yet funded.	1	No	Conceptual Phase not yet funded
	Yelm Shoreline Protection 3 properties = 45 acres	NLT	1	Yes	No	Yes	No. $180K est.	1	No	No funding. This may be one of the highest priority projects on the list.
	McKenna Area	NLT	1	Yes	No	No	No. $750K	1	No	No funding.

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	Protection project 249 acres of Nisqually mainstem off-channel creek and large wetland						est.			
	Tatrimima Trust Shoreline Acquisition - 30 acres in two shoreline parcels	NLT	1	Yes	No	Yes	Yes $325K PSAR, Thurston County Conserv. Futures	1	No	None
1.1.1.3 Encourage parkland acquisition	No actions are found in the 3-Year Work Program									
1.1.1.4 Tributary stream development rights	Mashel Eatonville Reach 70 acre shoreline floodplain Riparian Habitat Wetlands	NLT	1	Yes	No	Yes	No $135K	1 in feasibility stage	No	Need landowner agreement.
	Mashel Riparian Habitat Acquisition Project 72 acres=0.33 river miles	NLT	1	Yes	No	Yes	Yes $873,286 from WWRP	1	No	None
	Mashel Middle Reach Project 313 acres = 3.8 river miles	NLT	1	Yes	No	Yes	No $107,500	1 in conceptual phase	No	Need to reach agreement with timber company. Time of essence – company is selling.
	Upper Watershed Small Properties	NLT	2	Yes	No	Yes	No. $470K	Various	No	No funding.
	Lower Ohop Protection Project 100 acres and one mile lower Ohop Creek	NLT	2	Yes	No	Yes	No yet. $120K	1	No	Feasibility Completed
	Muck Creek Basin	Pierce	2	Yes	No	Yes	Yes	1	No	Conceptual Phase

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
	Floodplain Acquisition 60 acres	County					$1.04M from SWM, PSAR, SRFB			
1.1.1.5 Wetland acquisition/ protection	No specific actions flagged, although some tributary projects include wetlands.									
1.1.2 Secure commitments for permanent protection of critical publicly owned properties.										
1.1.2.1 USDOD/Ft Lewis properties	No specific actions found in the 3-year work program.									
1.1.2.2 Tacoma Public Utilities and City of Centralia properties	No specific actions found in the 3-year work program.									
1.1.2.3 City of Olympia - headwaters of McAllister Creek.	No specific actions found in the 3-yr. Work program									
1.1.3 Secure commitments for permanent protection of critical tribally owned properties.										
1.1.3.1 Nisqually Indian Tribe lands	No specific actions found in the 3-year work program.									
1.1.4 Secure land use (zoning) restrictions against incompatible uses.										
1.1.4.1 County zoning regulations in stream corridor	Update Critical Area Ordinance and SMP	Thurston Co and Pierce Co.	?	Yes	No	Yes	Yes. TC-CAO $280K TC-SMP $444K	3	No	Thurston Co CAO Update is complete. SMP updates are underway.

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							PC-SMP TBD			
1.1.4.2 Secure permanent forest zone designation in current commercial forest lands.	Upper Mashel Community Forest Initiative Create a community forest	NLT and NW Natural Resource Group	2	Yes	No	No	No $40K	1	No	Not yet funded. Conceptual Phase only.
1.1.4.3 City protection from further development stream corridor	No specific actions found in the 3-year work program.									
1.1.4.4 County/city regulations (level of development) in upland areas that will adversely affect aquatic conditions.	See, CAO and SMP update projects described above.	Thurston County Pierce County Cities	Yes	Yes	No	See each individual effort	Unknown	Unknown	No	Several updates are underway, some are completed. No one appears to be tracking this set of actions to ensure they are on track; substantively contain adequate protections and are effectively enforced.
1.1.5 Support non-regulatory education/outreach actions to encourage public habitat protection.										
1.1.5.1 Continue support and leadership in Nisqually River Council.	Not specifically described in the 3-year work program. Same as 1.1.5.2?									
1.1.5.2 Support local sub-watershed groups	Watershed Plan Implementation and Coordination	Nisqually Tribe	1	Yes	No	Yes	Yes. $468,240 By PCSRF	1	No	Lead entity needs additional funding for work to increase staff capacity.
1.1.5.3 Work with all	Implement 8 different	Nisqually	2	Yes	No	Yes	Yes.	8	No	None

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organizations in basin to build public outreach program for habitat protection and enhancement.	outreach and education programs (eg. NRAP, Stream Stewards, Salmon-Safe Certification and Ecosystem Markets)	Foundation, South Puget Sound SEG, Nisqually Tribe, Stewardship Partners, NNRG, NLT					SRFB, PSAR, EPA Approx. $3.7M			
1.2. Studies Needed to Support Habitat Actions										
1.2.1 Refine understanding of the potential for improvement of the estuarine environment.	Actions Complete; Monitoring restoration projects will also inform.									
1.2.1.1 Identify and prioritize key habitat, habitat diversity, and predation problems in estuary.	Nisqually to Point Defiance Nearshore Assessment Project	South Puget Sound SEG	?	Yes	No	Yes	Yes. $120K SFB, PSAR, Pierce Co	1	No	Project is underway.
1.2.1.2 Use information from studies to support implementation of scheduled habitat action items.	Not specifically documented, but assumed to be happening.									
1.2.2 Comprehensive reach-specific Restoration plans										
1.2.2.1 Develop	Assume Project is									Given that the

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Lower Ohop Creek plan	Complete									restoration projects is in Phase 2, we assume this preliminary work was completed.
1.2.2.2 Develop plan for reaches impacted by the City of Eatonville.	Assume Project is Complete?									
1.2.3 Develop Riparian Conditions Inventory for Nisqually	Assume Project is Complete									
1.2.3.1 Assemble available riparian condition information	Assume Project is Complete									
1.2.3.2 Acquire record of current conditions of riparian (aerial photographs) for anadromous portion of basin	Assume Project is Complete									
1.2.3.3 Assess current conditions - build long term riparian monitoring program for basin.	Assume Project is Complete									
1.2.4 Evaluate land use impacts on stream flows in basin	Assume Project is Complete									

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
1.2.4.1 Evaluate forest management activities on streamflows – using state-of-the-art methodology.	Assume Project is Complete									
1.2.4.2 Evaluate effects of future urbanization of basin on stream flows	Assume Project is Complete									
1.2.4.3 Evaluate effects of surface and groundwater use on streamflows	Assume Project is Complete									
1.2.4.4 Evaluate effects of well-withdrawals (deep and shallow aquifer) on summertime stream flows	Assume Project is Complete									
1.2.4.5 Evaluate effects of change in water withdrawal by City of Olympia from springs to up-gradient well field	Assume Project is Complete									
1.2.5 Assess off-channel habitat	Assume Project is Complete									
1.2.5.1 Evaluate current and historic	Assume Project is Complete									

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
offchannel habitat in the Mashel, Ohop and Nisqually Mainstem reaches, identify restoration opportunities; study role beavers have in developing and enhancing these habitats.										
1.2.5.2 Evaluate current and historic off channel habitat in remaining reaches; study role beavers have in developing and enhancing these habitats.	Assume Project is Complete									
1.3. Increase Quantity of Key Habitat										
1.3.1 Increase quantity and diversity of key habitat for estuarine life stages										
1.3.1.1 Restore former estuarine habitat (connectivity to marine and freshwaters) –	Nisqually Refuge Estuary Restoration Project - 760 acres	Nisqually Wildlife Refuge, DU, NFWF, Open Rivers, NOAA,	1 – Highest Priority in the entire plan.	Yes	No	Yes	Yes $1.2M	1	Yes	Project is now complete; Monitoring results

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Braget Farm		USFWS								
	Red Salmon Slough estuary Restoration-Phase 3 Remove last remaining dike on tribal land.	Nisqually Tribe	1	Yes	No	Yes	$505K USFWS, DNR, ESRP	1	No	To be completed by end of 2011. In design and permitting now.
Note: The former sub-strategies in this section have been condensed, as the work has changed. (See, 1.3.1.2 through 1.3.2.9)										
1.3.2.2 thru .9 Implement Estuarine Riparian Restoration Projects	28 Capital Projects	Various	1 and 2	Yes	No	Some	Partial	28	No	Lack funding
1.3.2.10 Implement wetland restoration strategies recommended in Mashel River basin.	These projects are not found in the 3-year work program									
1.3.2.11 Develop and implement management policy for beaver in the Nisqually Basin	This strategy is not found in the 3-year work program									
1.3.2.12 Implement lower Ohop Creek restoration plan.	Lower Ohop Protection Project 100 acres and one mile lower Ohop Creek	NLT	2	Yes	No	Yes	No yet. $120K	1	No	Feasibility Completed
1.3.2.13 Implement restoration plan for reaches impacted by City of Eatonville.	Mashel Eatonville Reach 70 acre shoreline floodplain Riparian Habitat Wetlands	NLT	1	Yes	No	Yes	No $135K	1 in feasibility stage	No	Need landowner agreement.
1.4. Predation Effects on Performance										
1.4.1 Decrease losses due to predation										
1.4.1.1 Work with	Not in 3-year work									

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
management agencies to reduce gull concentrations associated with Hawk's Prairie Landfill.	program.									
1.4.1.2 Develop and implement marine mammal management plan.	Not in 3-year work program.									
1.5. Channel Stability / Sedimentation Effects on Performance	These issues may be addressed by specific restoration projects, but it's not known which ones.									
1.5.1 Improve channel stability and reduce sedimentation during egg incubation life stage	These issues may be addressed by specific restoration projects, but it's not known which ones.									
1.5.1.1 Decrease future sediment generation and delivery (Critical Areas Ordinances, Municipal, farm improvements, and forest practice rules)	See CAO and SMP updates, above Forest practices rules are not shown on the 3-year work program.									It appears that the watershed is not tracking forest practices and regulatory updates related to them. DNR could inform this item.
1.5.1.2 Decrease occurrence of management	No action in 3-year work program									

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
related mass-wasting events (forest practice rules)										
1.5.1.3 Implement voluntary restoration opportunities for existing roads	Not in 3-year work program.									
1.5.1.4 Improve stormwater drainage from the City of Eatonville and the urbanizing areas near Lacey (Little McAllister Creek).	Eatonville Stormwater Reduction project	Stewardship Partners	?	Yes	No	No	No	1	No	New Project in design.
1.5.1.5 Reclaim exposed sediment sources associated with former clay mining operations	Not in 3-year work program.									
1.5.1.6 Implement wetland restoration for degraded wetlands.	See capital Projects List, above.									
1.5.1.7 Study effectiveness of beaver dams to reduce sediment inputs to streams.	Not on the 3-year work program.									
1.6. Nutrient/ Chemical Effects on Performance										
1.6.1 Decrease nutrient loading to streams and										

Chinook Salmon Recovery Plan Element NISQUALLY	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
mainstem.										
1.6.1.1 Implement farm management recommendations identified by Pierce County Conservation District.	Nisqually Basin Farm Planning	PCD, TCD	1?	Yes	No	Yes	Yes $680K	2	No	None
Note: the sub-strategies in this section are condensed into the main strategy. (See, 1.6.1.2 and 1.6.1.3)										
1.6.2 Increase quantity and diversity of aquatic prey items in degraded streams.										
1.6.2.1 Develop & implement program to distribute hatchery carcasses as food source in tributaries & mainstem reaches	Salmon Carcass Nutrient Enhancement Project	Nisqually Tribe, NREP	2	Yes	No	Yes	Yes $90K Nisqually Tribe, NFWF	1	No	None

SOUTH SOUND - WRIAs 13-Deschutes, WRIA 14-Kennedy-Goldsborough
(and Portions of WRIA 11-Nisqually, WRIA 12-Chambers-Clover, and WRIA 15-Kitsap)

PROFILE: "South Sound" is defined as that area of Puget Sound south of the Tacoma Narrows that includes the marine, nearshore, estuaries, and freshwater environments. Geographically, the South Sound lies within the Puget Lowlands situated between the Cascade Range to the east and the Olympic Mountains to the west. The dominant landform features of this area are the glacial plains cut by numerous streams and dissected by the inlets of Puget Sound. These shallow inlets divide the South Sound and cause poor circulation of seawater. As a result, water does not mix or dilute nutrient inputs to the same degree as in deeper areas. Many of the bays and inlets are more productive than the rest of Puget Sound. Nisqually Chinook, White River early run Chinook, and Puyallup Chinook are among the salmon populations that use these nearshore waters. The Nisqually River is the primary river system that empties into the southern part of Puget Sound. The region is also home to the Deschutes and the Kennedy-Goldsborough Rivers, as well as smaller, independent tributaries which flow from lowlands in the area.

Photo by Andrew K. Jacobson/The Examiner.com

The Deschutes watershed is located in Thurston County, with a small portion in Lewis County. Major cities in the watershed include Olympia, Tumwater and Lacey. Kennedy-Goldsborough is located 85% in Mason County and 15% in Thurston County; the major city is Shelton. Land use in Kennedy-Goldsborough is primarily forest (71%) with urban and agricultural use accounting for 4% each. Land use in the Deschutes is 54% forested, 39% non-forested vegetation, 16% agricultural and 5% urban. Projected population growth is 51% for Thurston County and 41% for Mason County. The Nisqually watershed is an important river system in this area and has its own profile. The planning area for the South Sound is under the state Watershed Management Act are Watershed Resource Inventory Areas 13 and 14. The nearshore of the Nisqually is in WRIA 11. Portions of WRIA 12 (Pierce Co.) and WRIA 15 (Kitsap County) are also included in the nearshore area covered by the South Puget Sound Salmon Recovery Group.

Major Industries: Commercial forestry, federal, state and local governments, U.S. Army (Ft. Lewis) and U.S. Air Force (McChord AFB), ports, shellfish aquaculture, agriculture, residential and retail services.

Important Groups: The South Puget Sound Salmon Recovery Group (SPSSRG) is a local planning group comprised of representatives from tribes, state agencies, local governments, and salmon recovery organizations with interest in the South Puget Sound nearshore. The SPSSRG is working to coordinate protection and restoration efforts around South Sound. The South Puget Sound Core Group (SPSCG) provides policy level direction and oversight. They steer the development and implementation of the PSP's Action Agenda in South Sound in the near term, and serve as the regional forum for advancing collaboration for management of the South Puget Sound ecosystem for the longer term. Participating entities include: WSU Extension, Pierce, Thurston and Mason County Conservation Districts; State Departments of Fish and Wildlife, Ecology and Puget Sound Partnership; the cities of Olympia, Shelton, University Place, Tacoma, Lacey and Steilacoom; the Counties of Mason, Thurston, Pierce and Kitsap; the Ports of Olympia and Shelton; the Nisqually, Squaxin, and Puyallup Indian Tribes; and the Key Peninsula/Gig Harbor/Islands Watershed Council, Citizens for a Healthy Bay, Coalition for Clean Water, Tacoma/Pierce County Health Department Nisqually River Council, South Puget Sound Salmon Enhancement Group, Chambers-Clover Watershed Council, MetroParks, Tacoma, Cascade Land Conservancy and People for Puget Sound.

Limiting Factors: The SPSSRG identified twelve major human-induced stressors on natural processes specific to South Puget Sound. These include: shoreline armoring; overwater structures; ramps; stormwater/wastewater; landfill below the mean higher high water line; riparian loss; wetland and estuarine modification; input of

toxic components; predation; boat traffic; invasive species; and shellfish aquaculture. While this list is not exhaustive of all human-induced stressors, it does reflect those with the most significant impact on natural processes and the greatest prevalence throughout all of South Puget Sound.

Implementation Assessment - Summary of Key Findings

The South Sound area recognizes the interconnectedness of several watersheds (WRIAs 11, 13, 14 and portions of WRIAs 10/12 and 15), crossing the jurisdictional boundaries of no less than four counties (Kitsap, Pierce, Mason and Thurston Counties), numerous cities and towns, as well as the usual and accustomed areas of three tribes (Nisqually, Puyallup and Squaxin Indian Tribes). They are a model of cross-jurisdictional collaboration and resource sharing, pooling funds to support large projects (such as the Devils Head acquisition by West Sound from several South Sound lead entities). In terms of their recent accomplishments, each WRIA has positive actions to report, including:

WRIAs 13 and 14:

- WRIA 13 and 14 have worked towards prioritizing the nearshore areas.
- Working intensely in all of Eld Inlet to develop landowner relationships that lead to projects;

WRIA 13:

- Completed the removal a fish passage barrier at the mouth of Snyder creek on Eld Inlet, with tidal inundation and fish access to 1.5 miles of habitat;
- Completed work with St. Martins on Woodland Creek in Henderson Inlet to remove debris from the stream channel, revegetate the site and restore passage;
- Funded and have near complete designs on the McLane Estuary Shoreline Restoration and also the adjacent Allison Springs Estuary and Saltmarsh Restoration (a regionally significant project);
- DNR has completed the alternative analysis of Woodard Bay NAP;
- Restored a pocket estuary at Beachcrest, reconnecting fish passage and tidal influence to a spring-fed creek;
- Full designs for the East Bay Salt Marsh Restoration;
- Bringing to funding consideration LWD placement on the Deschutes, at rm ~21, after working with a landowner for three years;
- Funding towards a piece of the Budd to Henderson Connectivity project;
- The Port of Olympia is at the table discussing the removal and estuary restoration of the blockage at the mouth of Mission Creek;
- Deschutes River Wetland Enhancement Project has been proposed for consideration for the pre-capitalization dollars with the fee-in-lieu of mitigation program;
- Consultation with landowners at Little Fish Trap for a combination of fee simple and conservation easement on the site;
- Working with Thurston County of their SMP update. Providing examples of bioengineered alternatives and helping provide TC Commissioners the necessary information to support technical recommendations;

WRIA 14:

- Working intensely in the Goldsborough watershed and with the BNSF railroad to develop projects and landowner relations in that area;
- Landowner discussions on the Fudge Point Conservation and Restoration;
- Conservation nearly complete on the 133 acres at Twin Rivers – restoration of native vegetation begins in May;
- Extensive landowner negotiations that could lead to purchase by the fall of the Oakland Bay Habitat Protection project;
- Acquired 80 acres at the Totten Inlet Pocket Estuary project (project of regional significance);
- Continue to look for matching funds on Eagle Point Shoreline Acquisition;
- Acquire several parcels (70 acres total) within the Goldsborough creek watershed;
- Acquired 112 acres through the Harstene Island Acquisition (project of regional significance);

- Continue to work with willing landowner on the East Hammersley Inlet Project;
- Continue to work with willing landowners on the Johns creek headwaters conservation initiative;
- Continued progress with the water type assessment.

WRIA 11:
Restoration of 762 acres in the Nisqually Estuary by the Nisqually Wildlife Refuge is a significant accomplishment that was substantially completed in 2009.

WRIA 10/12:
In the WRIA 10/12 Lead Entity, the Nisqually to Pt. Defiance Nearshore Habitat Assessment is nearly complete. The assessment has identified numerous potential restoration and protection projects along the WRIA 12 shoreline. Seven nearshore habitat restoration projects are currently included on the WRIA 10/12 three-year list. The projects include:

- Titlow Estuary Restoration,
- Chambers Bay Estuarine and Riparian Enhancement,
- Chambers Beach Reconstruction and Riparian Enhancement,
- Sequalitchew Estuary Reconnection,
- Sequalitchew Creek Beach and Riparian Restoration
- Narrows and Sequalitchew-Steilacoom Feeder Bluff Reconnection
- Pocket Beach Enhancement/ Nourishment Pilot: Sequalitchew to Solo Point

WRIA 15: The West Sound Watersheds Lead Entity was able to fully fund the SRFB request for acquisition of Devils Head at the southern point of the Key Peninsula, thanks to additional funding allocated from 3 of the 4 other South Sound lead entities. This pristine nearshore has been on the priority list for protection for many years, and will be acquired by Pierce County Parks and Recreation Services (original grant was proposed by the Cascade Land Conservancy). The cooperation and good will fostered by this sharing of financial resources for the greater South Sound is exemplary.

However, despite this success, there are issues of concern in South Sound. Specifically, the group reports that they are not on pace to meet their 3-year sequencing or their 10-year recovery goals mainly due to a lack of funding. Specifically, the 3-year work program identifies a total of:

- **105 Capital projects** (mainly habitat restoration and acquisition for protection or restoration) with a total project cost estimated at **$149.5 million**. They have identified $126.9 million in funding sources, but those funds are not yet available. They will also need to find an additional $13 million to complete all of the capital projects, (plus an unknown, additional amount for 25 projects that are in the early planning stages);

- **24 Non-capital programs and projects** (including project development for capital restoration projects, habitat protection programs, outreach and education, scientific studies and assessments, stormwater programs and lead entity support), with a total cost estimated at **$3.87** million. They have secured funding for $3.37 million, with a gap of $500,000 (plus an additional, unknown amount for 2 new projects that are in the early planning stages); and

They need additional support to engage in H-Integration, especially in the freshwater systems of the South Sound, and have been developing new tools to prioritize nearshore projects (both protection and restoration projects). In comparing the original Plan goals to current efforts, the South Sound has focused heavily on capital projects and their development, but little information is provided in their current work program (or in the narrative) about (1) their efforts to track and improve the regulatory or land use planning tools they identified as important for habitat protection; (2) their outreach efforts to encourage social change; (3) their efforts to create incentive programs for landowners to protect habitat; and (4) their efforts to gain an increased amount of funding to accomplish their plan goals.

The South Sound has flagged habitat protection, especially in the nearshore, as a critical issue, noting that until regulations improve, we may be losing nearshore habitat faster than it can be restored. Given this caution, we expected to see additional focus on these issues in the 3-year Plan, but only find $15,000 in funding to track SMP updates. It is possible that this is simply a reporting issue, but we flag it here for further discussion.

What do they need to get back on pace?

Funding. The South Sound group needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, cross-jurisdictional projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts).

Staff Capacity. In addition, the South Sound needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward. In the interim, the PSP liaison staff could help support these areas of the Plan.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Prioritization, Sequencing and H-Integration. The South Sound area is so large and complex, with 5 lead entities working together, they need extra support to develop a more formal organizational structure and to then develop an integrated, comprehensive strategy for recovery across all H's, which includes a prioritized set of actions.

Adaptive Management. The South Sound currently lacks the funding and staff capacity (time, enough staff) to engage in adaptive management planning. They are waiting for the development of the Nisqually Adaptive Management Plan, which may serve as a guide for their efforts. However, this work was flagged by NOAA as a critical gap in the entire Recovery Plan. As such, NOAA and/or the PSP may want to consider providing them with additional resources to speed up this work.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: SOUTH SOUND

Chinook Salmon Recovery Plan Element SOUTH SOUND	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Funded	Total # Projects In progress	Part of AMM?	Comments
HABITAT STRATEGIES										
1.0 Social Change through Outreach and Education										
NOTE: South Sound reports that there are multiple outreach efforts ongoing in South Sound, such as EcoNet, the South Sound Science Symposium, Lead Entities, etc. But none of this is tracked on the 3yr WP and it is not shown how it fits each of the strategies here.										
1.1 P-Educate and market wild salmon as an essential part of cmu culture	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
1.2 Engage local business, social groups, religious org. to support and get involved in recovery – P	#129 – Refine Outreach/Media Strategy for targeted outreach; #	Thurston and Mason Conservation Districts	Yes-1	Yes	No	Not yet	$17,500 PSAR, SRFB	1	No	Unknown (can't tell if they have the funding or will seek it)
1.3 Translate public support into political will to gain needed resources – P	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
1.4 Facilitate good development designs that protect salmon habitat	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
1.5 Teach people about habitat by providing more access to it.	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
2.0 Regional Leadership & Funding Support										
2.1 Form a regional entity to formulate and coordinate ongoing regional efforts, set priorities and measure progress *5 year (near term) action	Establish the South Puget Sound Core Group	South Puget Sound Core Group	Yes	Yes			Est. $500k (over 5 yrs)			Completed. South Sound has formed the South Puget Sound Core Group, which is the planning forum for Action Agenda coordination and direction and regional collaboration.

Chinook Salmon Recovery Plan Element SOUTH SOUND	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Funded	Total # Projects In progress	Part of AMM?	Comments
2.2 Establish a permanent S. Sound science advisory team *5-year (near term) action	Establish a Science Advisory Team	South Puget Sound Technical Team	Yes	Yes	Yes Adapt. Mgmt.	Yes 6 team staff	Est. $250k			Completed. This group is providing technical input for salmonid issues and coordinates with various technical teams from other WRIAs, state/fed agencies They also host an annual South Sound Science Symposium.
2.3 Gain adequate funding for staff to provide adequate development review and code enforcement	No actions found on 3-year work program to address these issues.	TBD	No	No		0	No	0	n/a	Not found as a project on the 3-year work program. This is an area of need for the South Sound.
2.4 Increase funding for acquisition and other voluntary protection measures. *5-year (near term) action	Numerous acquisition projects are on the 3-year work program; unclear whether funding has increased.	Govts, salmon recovery organization, land trusts	YES				$3 m for 5 year to purchase 50 acres			Although this is listed as a high priority, there is no specific action found on the 3-year work program to advance the stated goal.
3.0 Support Innovation										
3.0 Use innovation to recover salmon.	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
4.0 Improve Regulatory Effectiveness										
4.1 Use existing tools to protect habitat: SMP, CAOs, SEPA, Sewer, land use regs, NFIP laws, NPDES, Water law, boating ordinances, HPA, FPA, Aquatic Use permits, Noxious Weed control ordinances	#122 – Participate in SMP update in cities and counties.	All Lead Entities Pierce, Kitsap, Mason and	Yes-1	Yes	No	?Some	$15,000-Yes	?	No	The funding for this work seems low, given the amount of work involved. No other regulatory updates are found on the 3-year work program, that are being supported by

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		Thurston Counties; Cities of Lacey, Olympia, Tacoma, etc.								South Sound. NOTE: their narrative states that each lead entity is tracking the SMP updates and advocate for salmon considerations.
4.2 Consider cumulative impacts during permit and/or development review.	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
4.3 Coordinate review and permitting among agencies within the nearshore. (Provide a clearinghouse or single permit agency)	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
4.4 Engage in regional comprehensive regulatory planning across agencies. *5 year (near-term) action	No projects on the 3-year work program	SPSSRG	YES* per the Recovery Plan	No	No	No	Est. $100k	0	No	Although this is listed as a high priority, it is not found as a project on the 3-year work program.
4.5 Increase funding for staff to improve code enforcement and increase permit compliance. *5 year (near term) action	No projects on the 3-year work program	South Sound State, Tribal and Local govts	YES				Est. $100k			Although this is listed as a high priority, it is not found as a project on the 3-year work program.
5.0 Protection through Land Use Planning										
5.1Encourage open space with incentive programs and eliminate minimum lot size requirements to participate	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
5.2 Provide financial incentives to developers to use LID.	No projects on the 3-year work	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.

Chinook Salmon Recovery Plan Element SOUTH SOUND	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Leader	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Funded	Total # Projects In progress	Part of AMM?	Comments
	program									
5.3 Prevent high-density development along shorelines outside of UGAs.	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
5.4 Establish shoreline breaks in both urban and rural areas to protect habitat.	May be part of the SMP updates	Cities and Counties	(Maybe if part of SMP update)	Unclear	No	No	No	0	No	This could be covered in the SMP updates; but not specifically called out in the 3-year work program.
5.5 Integrate salmon recovery with SMPs and other protection regulations. ***5 year- near term action**	May be part of the SMP updates	South Sound state, tribal and local govts	YES	Yes	No	Yes	$400k for 4 govts est. in plan. $15k budgeted	1	No	This will likely be covered in the SMP updates; but not specifically called out in the 3-year work program for other regulatory updates.
5.6 Create salmon-friendly development standards for use by local govts in South Sound.	No projects on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is leading this strategy.
6.0 Protect through incentive programs										
6.1 Develop a strategic plan for acquisition of and management of land or devel rights in intact or nearly intact nearshore areas ***5 Year (near term) action**	Not on the 3-year work program.	Govts, salmon recovery organizations, land trusts	Yes	No	No	No	Est. $100k	0	No	Although this is listed as a high priority, it is not found as a project on the 3-year work program
7.0 Restore Habitat										
7.1 Restore natural nearshore processes that create habitat; Goal = 2 miles annually ***5 Year (near term action)** ***Note: See also restoration projects in watershed plan summaries for WRIAs 10/12, 11,***	C- For WRIAs 13 and 14, there are currently 67 habitat restoration projects listed on the 3-year work program (See Capital Projects #s1 through 67).	South Sound salmon recovery organizations	Yes – most are priority 1 and 2; a few are not yet ranked. Per South Sound, only the	Yes	No	Part	Approx. $105 million		X	Significant lack of funding to advance key projects; losses in nearshore habitat may be occurring faster than we can restore them. They have no identified

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14 and 15)	These include acquisition and restoration projects.		highest priorities are found on the list.							funding sources for $13,727,000; plus have another 15 projects for which funding has yet to be estimated. They self-report that they need to do more work to prioritize and sequence project across South Sound, especially in the nearshore area.
Adaptive Management	No actions at this time.	All	No	No, except for Nisqually	YES	No	No	0	YES	South Sound has not developed an AMM plan for the marine and nearshore areas. They will await the completion of the Nisqually Plan before they begin and will coordinate with the RITT's regional AMM effort.
H-Integration Efforts	No actions at this time.	All	No	No, except for Nisqually.	YES	No	No	0	n/a	No new progress in marine areas; Progress by Nisqually in freshwater areas.
Sequencing of Cross-WRIA work	No accepted strategy in place yet.	All	No	No	YES	No	No	0	n/a	Need to develop new organizational structure, then develop a prioritized, sequenced compreh. nearshore strategy.

WEST SOUND – (EAST KITSAP) – WRIA 15

Photo:Pete Saloutos

PROFILE: The planning area for the *East Kitsap Peninsula Salmon Habitat Restoration Strategy* is the eastern portion of Water Resource Inventory Area (WRIA) 15 that drains toward central Puget Sound, with the exception of Vashon Island. This area includes the streams, nearshore and marine waters of the east side of the Kitsap Peninsula, the Key Peninsula, the Gig Harbor Peninsula; and Fox, McNeil, Anderson and Bainbridge Islands. For the purposes of this summary, the area will be referred to as **East Kitsap**. The emphasis of the East Kitsap *Strategy* is a **multi-species, ecosystem approach**. The highest priority in East Kitsap is given to those freshwater habitat restoration and/or protection actions and projects that will benefit large numbers of salmon and multiple species. Additionally, East Kitsap has identified nearshore habitat conservation and restoration as a high priority, which will benefit local species as well as salmon originating from other watersheds in Puget Sound that use our nearshore areas during migration out to sea and back again.

Major Industries: U.S. Navy; Naval shipyard, hospital and medical services, defense contractors, state penitentiary (McNeil Island), manufacturing and publishing; residential services and local businesses

Important Groups: The West Sound Watersheds Council is the Lead Entity organization for salmon recovery in East WRIA 15. The organization was formed in 2007, replacing the "East Kitsap Salmon Habitat Restoration Committee". The participants include: Kitsap County , Pierce County, City of Gig Harbor, City of Port Orchard, City of Bremerton, City of Poulsbo, City of Bainbridge Island, Suquamish Tribe, and Squaxin Island Tribe. Other important organizations include the U.S. Navy.

Limiting Factors: East Kitsap watershed processes that are limiting factors for the stocks prioritized in the strategy (multiple salmonid species emphasis):

- **Streambed Degradation:** Streambed stability and spawning gravel quality have been degraded by high stormwater flow scour and fine sediment deposition.
- **Channel Degradation:** Stream channel changes have resulted from direct alterations such as ditching. In addition, stream bank erosion has increased in frequency and extent due to higher storm flows, loss of natural vegetation cover, and stream bank armoring.
- **Removal of Large Woody Debris (LWD):** There is a general lack of large woody debris in streams, which is important to providing high-quality rearing habitat for juvenile salmonids and deep holding pools for adult salmon migration.
- **Degradation of Floodplains:** There has been a significant degradation and loss of natural floodplain processes in larger stream systems, including the loss of functional off-channel wetland habitat.
- **Alteration of Riparian Function:** Almost all local streams have experienced a loss of natural riparian function due to the removal or alteration of natural riparian forest vegetation. This loss results in a decrease in water quality, an increase in stream bank erosion, and a reduction in shading (needed for water temperature regulation), and in impacts to stream habitat conditions through the decline of LWD recruitment.

East Kitsap nearshore processes that are limiting factors for salmonids and salmonid forage species:

- **Loss of Saltwater Marshes and Other Intertidal Areas:** Activities associated with shoreline development include filling of intertidal mudflats, salt marshes, and lagoon habitats; shoreline armoring; and removal of riparian vegetation.
- **Alteration of Shoreline:** Waterfront development activities such as armoring, filling, and dredging have altered natural shoreline processes. These processes include the recruitment of sediment and woody debris from eroding bluffs, littoral drift, and nutrient exchange.
- **Alteration of Tidal Flow:** The freshwater-saltwater exchange from tidal flow has been extensively altered due to tide gates, culverts, filling, dredging and other activities associated with the protection and modification of upland property.
- **Alteration of Intertidal/Shallow Subtidal Vegetation:** Intertidal and shallow subtidal vegetation has been adversely affected by shoreline armoring and filling. Specifically, the loss of eelgrass (*Zostera marina*) habitat is a concern. Remaining eelgrass meadows appear to be at risk of eutrophication and elimination due to the increasing presence of ulvoid mats (*Ulva* spp.). Stormwater outfalls may also alter eelgrass and aquatic macroalgae beds. The mechanisms for these alterations are likely related to both changes in water quality and reduced salinity near the stormwater outfalls.
- **Loss of Shoreline Riparian Vegetation:** There has been a significant loss of marine shoreline riparian vegetation. This vegetation provides similar functions to that of the riparian vegetation in the freshwater environment: bank stability, shade, detrital/nutrient
- input, and contribution of LWD.
- **Water and Sediment Pollution:** There are a number of potential problems associated with water and sediment quality that are of a larger scope than can be addressed by the East Kitsap *Strategy*. These include: risk of toxic and/or oil spills, existing sediment contamination, stormwater discharge, and point-source pollutants such as aquaculture net pens.

Implementation Assessment - Summary of Key Findings

The 2004 East Kitsap Salmon Recovery Plan (East Kitsap Plan) was proposed as part of the overall Puget Sound Chinook Salmon Recovery Plan. At the time the East Kitsap Plan was created, little was known about the local habitat types that needed protection and restoration. Several watersheds assessments were completed or underway, but others were not yet started.[20] For this reason, the planning group was unable to establish a unified set of goals, objectives and actions most of the other watershed plans.

The planning group established priority watersheds within WRIA 15 for recovery planning purposes based on their salmonid diversity, habitat quality and watershed size. The Plan identified the East Kitsap marine shorelines as playing a critical role for juvenile salmon rearing and migration, and therefore identified the nearshore as a high priority area for protection and restoration. As a critical first step to creating a more specific Plan, the planning group decided to perform an inventory to identify and prioritize habitat types and attributes needing protection and conservation, as well as the underlying ecosystem processes that drive those habitats. Those areas that were found to be in imminent risk of conversion to an alternate use were to be given priority for protection.

In the meantime, the Lead Entity used the nearshore assessments that were completed along with the Limiting Factors Analysis to identify and prioritize specific actions in the nearshore (See, Recovery Plan Appendix B). This was only intended as a starting place to help guide protection and restoration actions until the remaining assessments were completed. The list of action recommendations are to be used as a guide for the LE and should be considered "interim" until more and better data is developed to prioritize habitat types in East Kitsap.

In 2005, the Bainbridge Island Nearshore Assessment was completed and recommendations actions were prepared as part of the Plan (See, East Kitsap Recovery Plan, V6 at Appendix Q). Together, those two lists of actions form the initial East Kitsap Recovery Plan, which were used to assess progress for implementation purposes.

[20]At the time, nearshore assessment were completed for Key Peninsula, Gig Harbor, and Islands (KGI) Watershed in Pierce County. Bainbridge Island was finalizing a nearshore assessment and a gap existed for the remaining East WRIA 15, which included the East portion of Kitsap County.

Five years later, the West Sound Watershed Council (WSWC) has been formed and is leading the cross-watershed work, however, they have not yet completed a plan that consists of a unified set of goals, strategies and actions that is prioritized and sequenced across their planning area. Their efforts appear to be hampered by a lack of adequate staffing for regional collaboration and funding for projects. Adequate staffing is crucial to their success, given the physical distance that separates many of the participants. In terms of specifics, the WSWC intends to participate in the regulatory updates of key local policies and regulations (e.g., GMA Comprehensive Plan updates, SMP, NPDES program, and CAO updates), adding to the scientific record to support protection of nearshore and upland areas. However, there is little description of how this will occur in their 3-year work program and no funding designated for such work. Given that they cited a lack of follow-up and enforcement in maintaining protective buffers as a concern in their original plan, it was surprising to see that no actions were planned to work on these regulatory and programmatic items.

Similar to other watersheds within the ESU, the East Kitsap/West Sound chapter of the Chinook Salmon Recovery Plan is a work in progress and has changed significantly since its inception. Given the brevity of our review, there was no documented means of understanding how the changes were made and which strategies have been dropped, revised or added due to new information, experience and science. It will be important in the future to document the way in which the Recovery Plan is changing as it is adaptively managed over time.

One important accomplishment that will be completed this year is the acquisition of Devils Head at the southern point of the Key Peninsula, thanks to additional funding allocated from 3 of the 4 other South Sound lead entities. This pristine nearshore has been on the priority list for protection for many years, and will be acquired by Pierce County Parks and Recreation Services.

In term of their current progress against 10-year goals, the original plan did not set 10 year goals. Instead, their Plans called for numerous scientific assessments, surveys and monitoring to learn more about the nearshore areas and fish utilization of key nearshore habitats. The watershed did not propose any habitat restoration or acquisition capital projects at that time, but did adopt a number of non-capital strategies and actions. Today, they have identified a number of capital restoration projects, focusing on the nearshore areas as their highest priority and are striving to create a unified plan for their area, but have farther to go to achieve this (including an adaptive management plan). As it currently stands, WRIA 15 faces critical funding shortages to accomplish the work they have identified in the next 3-year period. Specifically, they have identified a total of 89 projects with an estimated cost of $88 million that needs funding. The projects include:

- **60 Capital projects** (mainly habitat restoration and acquisition for protection or restoration) with a total project cost estimated at **$68.38 million** for the East Kitsap and South Sound areas. They have identified **$19.4** m in funding sources, and have 18 projects currently underway. However, they will also need to find an additional **$49 million** to complete all of the capital projects;

- **15 Capital projects** (benefitting *non-listed species*) with a total project cost estimated at $**14.3 million** for both the East Kitsap and South Sound areas. Apart from local matching funds of **$2 million**, the watershed still needs to find an additional **$12.3million** to complete these capital projects.

- **14 Non-capital programs and projects** (including project development for capital restoration projects, habitat protection programs, outreach and education, stormwater programs, and monitoring), with a total cost estimated at **$2.1 million.** They have secured funding for $ **1.27 million**, with a gap of $ **915,000.**

Notably, the 2009-2011 biennial allocation of funds to West Sound is only $1,223.128, or 3.7% of the $33 million made available from Puget Sound Acquisition and Restoration Allocation (PSAR) funds.

In addition, given the large geographic area covered within WRIA 15, and their desire to continue collaborating with South Sound in their recovery work, it is critical that adequate staffing be achieved for this watershed.

What do they need to get on pace and establish near-term goals?

Funding. The West Sound Watershed Council needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, cross-jurisdictional projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts).

Staff Capacity. This area has no lead entity. It depends on the cross-watershed collaboration and leadership that has occurred in the past, but which is difficult to maintain as local staffing cuts eat away at staffing infrastructure of local salmon recovery programs within the region. In addition, the Council needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward, especially creating a unified Recovery Plan for the entire West Sound area.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs.

Prioritization, Sequencing and H-Integration. Similar to South Sound, the West Sound area is so large and complex, with multiple lead entities and jurisdictions working together, they need extra support to develop an integrated, comprehensive strategy for recovery, which includes a prioritized set of actions.

Adaptive Management. The West Sound currently lacks the funding and staff capacity (time, enough staff) to engage in adaptive management planning. This work was flagged by NOAA as a critical gap in the entire Recovery Plan. As such, NOAA and/or the PSP may want to consider providing them with additional resources to begin engaging in this important work.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: WRIA 15 -WEST SOUND – EAST KITSAP

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
HABITAT STRATEGIES										
4.1.0 Protect Water Quality and Instream Flows										
Design, pilot and implement a comprehensive Water Quality and Flow Monitoring Programs	WRIA 15 water typing project	Wild Fish Conservancy	Yes	Yes	Yes	Yes	Yes $100k	1	n/a	None. Project underway.
Link Groundwater Monitoring Program to instream flows actions	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
4.1.1 Complete watershed assessments and use local information sources										
Complete and Update Bainbridge Island Sub-Watershed Assessment	No actions found on the 3-year work program;	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Complete BI nearshore Assessment and integrate into GMA/SMP regulatory updates	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Review and	No actions found on the 3-	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr.

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Update the Bainbridge Island (BI) Sub-Area Plan for Comp Plan and Regulatory Updates	year work program									WP. Is this project complete?
Perform salmon population monitoring	No actions found on the 3-year work program	Unknown	No	No		No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Perform Forage Fish Surveys	No actions found on the 3-year work program	Unknown	No	No		No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Perform Sea Bed Mapping and integrate into SMMP update	No actions found on the 3-year work program	Unknown	No	No		No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Perform Drift-Cell sediment budget analysis and integrate into SMMP update	No actions found on the 3-year work program	Unknown	No	No		No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Integrate subsurface geologic mapping into sub-watershed assessments.	No actions found on the 3-year work program	Unknown	No	No		No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Integrate results of surface geologic mapping into sub-watershed assessments	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Perform Data	No actions found on the 3-	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr.

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Management to share with local and state databases.	year work program									WP. Is this activity happening?
Perform shoreline roads study	No actions found on the 3-year work program	City of Bainbridge Island	Yes in 2005	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
NEW HABITAT ASSESSMENT PROJECTS NOT ON ORIGINAL PLAN:										
Kitsap NS Alternative Futures	RS - Use NS assessment for protection and restoration	Kitsap DCD	Yes	Yes	No	Yes	Yes $587K	1	No	None
Bainbridge Island Shore Prog – Project Development	P - Works with NS team to develop projects	City of Bainbridge Island	Yes	Yes	No	No	No $75K	0	No	Project on hold by watershed
Chico Estuary and Mainstem Public Use	Develop plans and agreement for public use.	Kitsap DCD	Yes	Yes	No	Yes	Yes $160K ESRP	1	No	Project to be completed this year.
Nearshore Project Effectiveness Monitoring	Monitor Project effectiveness SOUTHSOUND PROJECT	SPSSEG Kitsap DCD	Yes	Yes	Yes	No	No $80K	1 under conceptual development	Yes	Funding
4.1.2 Policy and Regulatory Programs										
Use regulatory programs to protect habitat GMA Comprehensive Plans; SMPs, CAOs, storm water and zoning ordinances;	No actions shown on 3-year work program, apart from SMP updates (below).	All jurisdictions	SMP Only	SMP Only		None shown	No	5 – but not sponsored by West Sound?	No	The SMP updates are underway; no specifics about role of West Sound in providing information. No funding shown. No discussion re: other GMA and regulatory updates
Update	Not on 3-year work	All cities	No	No		None	No	0	No	Same as above.

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Environmental Element of Comp Plan	program	and Kitsap County								
Perform CAO Update w/BAS	Not on 3-year work program	All cities and Kitsap County	No	No		None	No	0	No	Same as above.
Perform SSWMP update (NPDES permit program)	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this activity happening?
Perform SMMP update	Updates to SMPs are underway in all 5 cities; No discussion re: other regulatory updates	Bainbridge Island, Poulsbo, Bremerton, Port Orchard, Gig Harbor	SMP Only	SMP Only		None shown	No	5 – but not sponsored by West Sound?	No	The SMP updates are underway; no specifics about role of West Sound in providing information. No funding shown. No discussion re: other GMA and regulatory updates
4.1.3 Non-regulatory programs										
Incentive programs will protect and restore habitat	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. No one is leading this strategy.
Review and revise PBRS program to include shorelines and small lots	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. No one is leading this strategy.
4.1.4 Watershed Planning										
Complete RCW 90.82 planning process;	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Complete Bainbridge Island Sub-Area Watershed Plan	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP. Is this project complete?
Review and annually update salmon recovery and conservation report Perform H-Integration work	Update salmon recovery Plan and continue education and outreach efforts	West Sound Watershed Council	Yes	Yes	No	Yes Lead Entity	Yes $115,000 annually; inadequate to support program needs	Many	Yes	Need additional staff to increase capacity to coordinate across their planning region and with South Sound
	Create an ongoing stakeholder process for recovery planning	West Sound Watershed Council	Yes	Yes	No	Yes Lead Entity	Same as above.	Many	Yes	Same as above.
4.1.5 Education and Outreach										
Hold annual stewardship event	Shoreline Stewardship beach programs	Pierce CD, Kitsap SSWM, UW/WSU	Yes	Yes	No	Yes	$175,000)	1	No	N
Hold annual salmon homecoming event	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP.
Measure community support via surveys	No actions found on the 3-year work program	Unknown	No	No	Yes	No	No	0	No	Not found on the 3 yr. WP.
Extra activities: not on the original list:	Natural Yard Care Program	TPCHD, Pierce County Solid Waste	Yes	Yes	No	?No	$175,000-No?	1	No	Project needs funding
	Marine education in schools Program	Pierce CD, Kitsap SSWM, UW/WSU	Yes	Yes	No	?No	$105,000-No?	1	No	Project needs funding.

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
	Realtors Workshops	Pierce, Kitsap Conservation Districts	Yes	Yes	No	No?	$30k – No?	0	No	
4.2 Hatcheries	See HGMPs for specific hatchery populations									
5.2 Process Gaps	? No actions specified									
5.3 Funding Resource Gaps	Fill funding gaps so that other jurisdictions can participate.	Unknown	No	No	No	No	No	0	No	WRIA 15 has identified this as a **major obstacle** to adequately assessing the contribution of existing and proposed actions to the recovery of Chinook salmon.
Adaptive Management	No actions found in Plan	West Sound	No	No	YES	No	No	0	YES	No projects are associated with filling this high priority gap.
NEW - HABITAT RESTORATION										
NEW Capital Habitat Restoration Projects (Not in Original Recovery Plan)	<u>For East Kitsap areas</u>: 50 Capital Habitat Projects (including acquisition for restoration or protection)	Various	Yes	Yes	n/a	Yes	Partial: For <u>East Kitsap:</u> $59.4 m total est. plus new projects for which no budget has been established	17 of 50 are underway	No	Inadequate Funding; For <u>East Kitsap</u>: $15.4m funded; $44 million gap. Total Unmet Need is $49.35 million for both areas (E. Kitsap and S. Sound)
	<u>For South Sound areas</u>: 14 Capital Projects (including restoration and acquisition for protection/restoration)	Various	Yes	Yes	n/a	Yes	For <u>South Sound:</u> $8.98m	3 of 10 are underway	No	Inadequate Funding; For <u>South Sound</u>: $3.97m funded; $5.35 million gap

Chinook Salmon Recovery Plan Element WEST SOUND/ EAST KITSAP	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	Comments
Capital Project – Non-Listed Species - East Kitsap	15 additional non-listed species capital projects - East Kitsap area	Varies	Yes	Yes	No	Some	No Total Project costs $14.3M; Local match is $2.0M; Gap is $12.3M	15	No	There does not appear to be funding for these important ecosystem projects.
Capital Project – Non-Listed Species - South Sound	5 Capital projects benefitting non-listed species.	Varies	Yes 2	Yes	No	No	No. Conceptual planning $3.9 M Est.	5	No	Need funding for these projects.

Mid-Hood Canal – WRIAs 15, 16 and 17

PROFILE: Hood Canal is a natural, glacier-carved fjord more than 60 miles long by boat, with a total of about 358 miles of shoreline. It forms the westernmost waterway and margin of the Puget Sound basin. It is situated in Jefferson, Kitsap, and Mason Counties. It begins in the north in Admiralty Inlet between Tala Point and Foulweather Bluff and extends southwesterly about 45 miles to the Great Bend at Annas Bay. From there the land turns northeasterly 15 miles to its head at the Union River estuary near Belfair. The Hood Canal watershed is defined by the land and waters within the canal's hydrographic boundary- the drainage basin in which all the water flows to the canal. It encompasses a highly interactive system that is dependent upon the continuing cycle of clean water and nutrients to sustain its biological character. Landownership in the watershed is 48% federal (including portions of the Olympic National Park and Olympic National Forest), 39% private, 12%state and local and 1% tribal. Five major river systems are found within Hood Canal including the Dosewallips, Duckabush, Hamma Hamma, Skokomish and Big Quilcene rivers. The marine shorelines are important producers of Pacific oysters, shellfish, crab and shrimp. Hood Canal has suffered from low dissolved oxygen levels in recent years, which has created vast dead zones.

MAJOR INDUSTRIES: Aquaculture, commercial forestry, farming, health care, U.S. Naval operations, recreation, tourism and residential services.

IMPORTANT GROUPS: The Hood Canal Coordinating Council is a Watershed-based Council of Governments, consisting of Jefferson, Kitsap and Mason Counties; Port Gamble S'Klallam and Skokomish Tribes; and State and Federal agencies. It was established in 1985 in response to community concerns about water quality problems and related natural resource issues in the watershed. The Hood Canal Coordinating Council, working with partners, community groups and citizens, advocates for and implements regionally and locally appropriate actions to protect and enhance Hood Canal's environmental and economic health.

LIMITING FACTORS: Estuarine habitat loss and degradation associated with loss of eelgrass, bulkheads and revetments, and impaired riparian corridors have reduced the amount of rearing habitat in the estuarine and nearshore area as well as limited the amount of food for migrating juveniles. Channel complexity and overall channel conditions have been impacted by dredging, removal of large woody debris (LWD) and lack of LWD recruitment. Logging has modified native riparian forests and has resulted in reduced LWD recruitment, increased water temperatures, reduced bank and floodplain stability, and impaired channel conditions, resulting in the loss of juvenile rearing and spawning habitat. High water flows in the winter months cause scouring of salmon redds and, in association with unnatural man-made sediment sources (e.g. owing to forest practices), transport sediment loads downstream, potentially burying redds and reducing habitat quality. Summer low flows prevent or delay upstream passage and also reduce available spawning habitat. Floodplain modifications and loss of freshwater wetlands that occurred largely due to the conversion of floodplains to pastureland and residential development have reduced the quantity and quality of habitat available for spawning and rearing and changes in instream flows. Logging roads in the upper watersheds, as well as diking and channelization in the lower reaches has resulted in sediment aggradation, reducing spawning habitat and affecting incubation. In addition to habitat limiting factors, there is evidence that harvest and hatchery activities have been limiting to Mid Hood Canal Chinook salmon.

Implementation Assessment - Summary of Key Findings

The recovery strategies in the Mid-Hood Canal Plan focus on three main rivers: the Dosewallips, Duckabush and Hamma Hamma. Many of their high priority actions have been taken, and others remain possible but are not moving due to a lack of funding. In the Dosewallips and Duckabush rivers, the watershed reports significant conservation activities are ongoing, but they are taking a deliberately slow pace to address the political climate and property rights concerns of citizens. The narrative accompanying the 3-year work program provides a detailed look at where they are focusing their time and efforts. They are not focusing significant effort on the Hamma Hamma watershed in the near-term, as they have determined actions in those areas are a lower priority for now. On balance, the watershed is achieving slow, but steady progress on its habitat restoration goals. **However, they self-report that they are not on pace toward their 10-year goals due to a lack of funding, staff capacity and landowner expectations.**

Specifically, the 3-year work program identifies:

- **75 Capital projects** (mainly habitat restoration and acquisition) with a total project cost estimated at approximately **$112.4 million**. They have identified just under half of that amount in funding, but they will need to find an additional $66 million to complete all of the capital projects, (plus an unknown, additional amount for 2 additional projects that are in the early planning stages). Putting this gap in context, the Mid-Hood Canal funding allocation from PSAR for the 2009-2011 biennium for Chinook salmon recovery is only $3.1 million.

- **16 Non-capital program** (mainly habitat project development, monitoring, scientific research, harvest program support, adaptive management, lead entity coordination, outreach and education, etc.), that are underway in the watershed with a total project cost estimated at $1.8 million. However, few of their non-capital programs have identified program cost estimates or funding sources shown on their 3-Year Work Program. In reviewing collateral sources, it is clear that the Hood Canal Coordinating Council is spending significant time on programmatic activities, but we were not able to get a definitive picture to understand what work is on track and what is not being advanced by the HCCC.

As a Lead Entity, the HCCC oversees the implementation of the Hood Canal Summer Chum Recovery Plan, the Mid-Hood Canal Chinook Salmon Recovery Plan and the creation of a new Skokomish Chinook Salmon Recovery Plan, which has been in the development process. They recently completed the study and report entitled, "A Vision for Hood Canal: Hood Canal Integrated Watershed Plan" which they will use to guide the integration of their work over time on multi-species recovery actions.

With regard to programmatic actions for Summer Chum, the HCCC is developing a protected lands database project. This project is being designed to map and describe lands throughout the summer chum geographic area that provide protection for salmon habitat and key ecosystem functions and processes. The project will examine the relative levels of protection afforded each area and the habitats and processes that are most important from an ecosystem-based management perspective. These results will be compared relative to their build-out analysis and land use permit tracking programs. The build-out analysis was completed as part of the Plan. The land use permit tracking program is a work in progress that examines where on the landscape in the summer chum geographic area development is occurring relative to assumed build-out. Also in development is a programmatic database, which is designed to track the progress of programmatic actions such as Shoreline Master Program updates. Both the Puget Sound Chinook and Summer Chum Recovery Plans call for annual and five year reviews to track progress and re-evaluate Plan approaches, and to capture relevant new information. Working with the Tribal and State co-managers and the various groups throughout the region involved in salmon recovery, the review and adaptive management process is intended to bring together all aspects of H-integration (habitat, harvest, hatcheries) including the results of the build-out analysis, land use tracking, and protected lands programs described above.

In addition, the HCCC is working on the development of an Integrated Watershed Plan (IWP) which will incorporate all of their programs into one integrated set of planning goals, using the open standards format and including adaptive management and monitoring. The IWP will establish benchmarks for habitat types, attempting to state how much is needed in the near-term and long-term, against which they can reassess and measure the effect of climate change. They have created a public outreach and education plan and are attempting to develop their habitat recovery goals and benchmarks using community-based priorities.

The watershed reports that there is an overall trend toward improvement of regulatory protections through the SMP and CAO updates that are required of local cities and counties. However, the HCCC does not have monitoring data on habitat status and trends that would show whether there is an observable difference on the ground as new regulations are being implemented. They are tracking the population level trends for Mid-Hood Canal Chinook and report that the population is declining and perhaps even at dangerously low levels. Discussions about the status of the populations are presently underway within the HCCC. Watershed staff also notes that there is no funding to pay for post-project monitoring, which significantly limits their ability to know whether habitat restoration investments are working over time.

The two largest areas of need for the HCCC is funding and support to (1) address and remove the SR 101 constrictions and fill; and (2) perform an assessment of the impact of logging roads (public and private) in the upper watersheds and once completed, to design strategies/actions to address those impacts.

What do they need to get back on pace?

Political Support and Tools such as a Watershed Characterization for Hood Canal. The HCCC needs tools such as the watershed characterization that are being led by the Department of Ecology, which can help drive their habitat protection programs and provide a context for land use conversations with local governments and landowners in the region leading to protection of ecosystem processes, structures and functions. They need political support from the region to "change the game" and drive new efforts at protection. Staff stated their appreciation of the role that PSP staff plays in their watershed, working with them as technical team members in recovery, and in supporting their funding efforts.

Funding. The Hood Canal Coordinating Council needs support from NMFS and the PSP to create and implement a funding strategy, especially for large, cross-jurisdictional and/or multi-species projects (e.g., political support, outreach/education to public and legislators, coordinating legislative efforts).

Staff Capacity. In addition, the Council needs additional funds to add staff to work on the numerous policies, programs and additional planning and coordination needed to move not only the Chinook Plan, but also the Summer Chum and Skokomish Chinook Recovery Plans forward. In terms of their staffing needs, the HCCC needs additional funding for the following staff:

- 1.0 FTE Outreach and education coordinator
- 1.0 FTE Senior Planner to manage the Adaptive Management program and H-Integration work (including revision of the Stock Supplement program)
- 1.0 FTE Planner to manage and track non-capital programs for habitat protection
- 1.0 FTE Biologist or other Technical Specialist to manage an overall monitoring program
- 1.0 FTE (Seasonal employees) two part-time employees to collect monitoring data in the field
- 1.0 FTE (Project Position – 24 mos.) Senior Planner to update the Summer Chum Plan

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific needs, including non-capital programs.

Prioritization, Sequencing and H-Integration. The Mid-Hood Canal and Eastern Straits area is large, and they need extra support to implement the Watershed Integration Strategy that they have developed.

Adaptive Management. The HCCC is engaged in adaptive management, but would benefit from additional funding and staff capacity to engage in the planning work needed to complete Plans for Puget Sound Chinook, Skokomish Chinook and Summer Chum.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: Mid-Hood Canal Watershed

Chinook Salmon Recovery Plan Element MID-HOOD CANAL WATERSHEDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM	Comments
HABITAT STRATEGIES										
A. Implement High Potential Protection and Restoration actions:										
Dosewallips Watershed										
A.1. Riparian and in-channel wood restoration	C – 3 Capital restoration projects 30 more LWD projects are planned for future	Varies: WFC, USFS, Tribes, Jefferson land Trust, State Parks, HCCC, TNC	Yes	Yes	No	Yes	Yes Projects Est'd costs $4.954M Available = $1.458M	3	No	Need $3.496M to complete these projects. Projects are in various stages of completion.
A.2. Estuarine restoration	C – 3 Capital Restoration Projects	WFC, Tribes, State Parks, HCSEG, USFS	Yes	Yes	Yes -1	Yes	Yes. $3.478M = est'd cost $1.135M Available	3	Yes for removal of Fishtrap Project	$569K Unfunded
Duckabush Watershed										
A.3. USFS road decommissioning	C – One project - 8.7 miles of high priority forest service roads	USFS, Tribes, HCSEG	Yes	Yes	No	Yes	No. Est'd cost = $370,500. $0 funds available	1	No	Awaiting a federal appropriation. Project in design permitting phase.
A.4 Riparian and in-	C – 5 Projects including	Jefferson	Yes	Yes	No	Some	Partial.	5	No	One of the six has

Chinook Salmon Recovery Plan Element MID-HOOD CANAL WATERSHEDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM	Comments
channel wood restoration	acquisition, restoration, log jams, levee removals, etc.	County, Jefferson Land Trust, WFC, USFS, Tribes, HCSEG					Est'd cost $4.791M Available= $1.226M			no cost. Need $3.5M
Hamma Hamma Watershed										
A.5 Upper Hamma Hamma watershed recovery	C – One project	USFS	Yes	Yes	No	?	No. Est'd cost =$100K	1?	No	This project is waiting for federal funding. It will improve riparian conditions in non-anadromous reaches to address sediment.
A.6 US Forest Service road decommissioning.	C – decommission high priority roads	ESFS, Tribes, HCSEG	Yes	Yes	No	? Yes	No. $1.048M No funding available.	1	No	Awaiting federal funding to remove 27.1 miles of forest service road. Project will be in design phase in 2011.
	USFS Road Drainage and Stabilization project	USFS	Yes	Yes	No	No	TBD No funds available	1	No	Listed as being in permitting and construction in 2009 but there is no funding shown. ?
B. Develop strategies and partnerships to address highest priority habitat actions										
Dosewallips Watershed										

Chinook Salmon Recovery Plan Element MID-HOOD CANAL WATERSHEDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM	Comments
B.1. Relocation and estuarine restoration in developed areas (C)	See above									
B.2 Floodplain restoration in developed areas	No actions on the 3-year work program	Unknown	No	No	No	No	No	0	No	No one is advancing this strategy.
Duckabush Watershed										
B. 3 Floodplain and channel restoration in developed areas of the lower river ©	See projects in Section A, above									
B.4 Estuarine restoration to include SR 101 causeway mitigation – C	SR101 Causeway Replacement	USACOE, WSDOT and others	Yes	Yes	No	No	No. $20M	1	No	Needs federal funding. Project is replace the SR101 Causeway.
Hamma Hamma Watershed										
B.5 Riparian and in-channel wood restoration in the lower river;	No projects on the 3 year work program.	None	No	No	N/A	No	No	0	No	No projects are identified at this time. Due to a single, stable ownership in forestry, the WRIA has not proposed any project here.
B.6. Floodplain restoration in the lower river	C – Hamma Hamma Estuary Restoration Project – 50 Acres	HCSEG	Yes	Yes	No	Yes	Partially $620K	1	No	They need more funding and additional design for this project to move forward. $194K available funds $426K gap
B.7. Restoration of Johns Creek watershed	No projects on the 3 year work program.	None	No	No	N/A	No	No	0	No	No projects are identified at this time. Are these projects complete?
C. Coordinate with										

Chinook Salmon Recovery Plan Element MID-HOOD CANAL WATERSHEDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM	Comments
other salmon habitat recovery efforts to find common objectives for habitat protection & restoration										
Implement a common strategy where possible.	Implement the Integration Project Final Report	HCCC	No	No	?	Yes Triad Consultants	Yes –State Grant funds	1	n/a	Study Completed. Now need to implement recommendations
D. Revisit and revise the habitat action list & strategy as needed.										
No statement about specific actions.	Participate in 3-year work program updates	HCCC	Yes	Yes, but not on list	Yes	Yes	Yes	1	Yes	Annually participating in project review and updates.
E. Implement and enforce current land use regulations										
No statement about specific actions.	Not on the 3-year work program	Unknown	No	No	?	?	No	0	n/a	The Counties and cities are participating in mandatory regulatory updates. HCCC reports they are tracking these processes and participating, but unclear as to where this work stands, since its not on the list.
F. Protect current habitat conditions from degradation.										

Chinook Salmon Recovery Plan Element MID-HOOD CANAL WATERSHEDS	Actions to Implement Key Strategies; Type: R=Regulation C=Capital I = Incentive RS=Research P=Policy, Planning, or Program	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	Part of AMM	Comments
No statement about specific actions.	No actions are found on the 3-year work list	Unknown	No	No	?	?	?	0	n/a	No one is leading this strategy.
G. Adaptive Management										
G.1 Assess watershed conditions over a long time period; (RS)	Information unknown	Unknown	No	No	?	?	?	0	n/a	There are no actions on the 3-year work program related to this item.
G.2 Respond to large scale changes in watershed conditions; (P/RS)	Information unknown	Unknown	No	No	?	?	?	0	n/a	There are no actions on the 3-year work program related to this item.
G.3 Assess implementation of habitat protection and restoration actions to determine if they are working as expected (P)	Information unknown	Unknown	No	No	?	?	?	0	n/a	There are no actions on the 3-year work program related to this item.
G.4 Assess watershed development impacts. (RS)	Information unknown	Unknown	No	No	?	?	?	0	n/a	There are no actions on the 3-year work program related to this item.
Future Actions: Develop a Summer Chum Plan to provide stakeholders with certainty-P	The plan is complete	HCCC								Action complete.

ELWHA/DUNGENESS RIVER WATERSHEDS – WRIAs 17, 18 & 19
Strait of Juan de Fuca

Elwha River Profile

Elwha Dam – Photo courtesy of USGS

PROFILE: Located off the Strait of Juan de Fuca in northern Puget Sound, the Elwha River originates deep in the Olympic Mountains inside Olympic National Park. It is one of the largest rivers on the Olympic Peninsula and supports all five species of Pacific salmon. Scientists believe the river once supported some of the largest Chinook salmon in the state, weighing in at over 100 pounds. The watershed encompasses 321 square miles, the majority of which is within the protected area of the National Park, and most of it has pristine condition. The mainstem river is over 45 miles in length with over 100 miles of tributary streams. The river is constrained by the Elwha and Glines Canyon dams. The dams block 95 percent of the high quality spawning and rearing habitat. The Elwha dam is scheduled for removal in 2011, which will re-open 70 miles of prime mainstem and tributary habitat. The only major city within the watershed is the City of Port Angeles. Most of the watershed is within Clallam County (with only 19 percent of the watershed falling within Jefferson County).

Major Industries: Public & Private Service Sectors, Retail Trade & Tourism, Manufacturing, Fishing, Timber Harvest, Recreation

Important Groups: National Park Service, Lower Elwha Klallam Tribe, Olympic National Park, North Olympic Peninsula Lead Entity for Salmon, Clallam County, Makah Tribe, City of Port Angeles, North Olympic Salmon Coalition, WDFW, Clallam Conservation District, Coastal Watershed Institute, Elwha-Morse Management Team, Streamkeepers of Clallam County, Bureau of Reclamation, USGS and the Puget Sound Partnership.

Limiting Factors: The largest factors limiting salmon recovery in the Elwha are the two dams: the Glines Canyon Dam and the Elwha Dam, built in 1911 and 1912, respectively, which are both blocking access of Elwha Chinook to 95% of their historic range. The habitat remaining below the dam is of generally poor quality, with only a small area of high quality habitat remaining. In addition, the two dams on the Elwha River have interrupted the natural functions of the river ecosystem. Nearly 18 million cubic yards of sediment have been captured in the two reservoirs, affecting not only the lower river system but also the estuarine and nearshore environment both east and west of the river mouth. Recruitment of large woody debris has also been halted by the dams' restricting normal channel processes that create salmon habitat. Finally, the two reservoirs serve as "heat sinks" during the summer, dramatically increasing water temperature downstream of the two hydroelectric projects. In addition to the effects of the dams, development in the watershed has negatively impacted natural floodplain processes. Off-channel habitat has been reduced through dikes, draining, tide gates, and bank hardening. Water diversions in the basin also contribute to low flow conditions that affect salmon spawning and rearing habitat, while high flow conditions cause scouring in mid-channel areas preferred by spawning Chinook, making conditions hazardous for newly deposited eggs. Water rights in the river currently exceed summer low flows, although the actual water use during the summer is only a small percentage of the water right claims. However, if these rights were fully utilized, it would have a devastating impact on the listed fish stocks in the river.

DUNGENESS RIVER PROFILE

Photo courtesy of US Dept of Interior

PROFILE: The Dungeness River is a gravel and cobble-bed stream located on the Olympic Peninsula of northwestern Washington State. The river flows northward about 30 miles from the base of Mount Deception in the Olympic Mountains to the Strait of Juan De Fuca near the town of Sequim. The watershed has a drainage area of more than 156 mi^2, a portion of which is located within the boundaries of Olympic National Park. The river is steep, falling about 3,300 feet in 28 miles for an average slope of 0.022. The river slope is steepest in the upper watershed canyons, but decreases downstream. The downstream most 10 miles of river flows across a piedmont surface, composed of glacially-derived sediment and outwash. The channel in these lower 10 miles has incised into this material since the Pleistocene (about 10,000 years ago) and meandered some, but within a relatively narrow corridor. There has been a sharp decline in the numbers of salmon returning from the ocean to spawn in the Dungeness River. Two species of salmon are now listed as endangered. The upstream watershed has been affected by logging and the associated road building. The lower ten miles of river have been affected by the construction of levees, dikes, bridges, bank armoring, and by irrigation withdrawals and the removal of large woody debris. According to the TRT, the Dungeness Chinook population must achieve low risk for the ESU to achieve Recovery.

Major Industries: Public & Private Service Sectors, Retail Trade & Tourism, Manufacturing, Fishing, Timber Harvest, Recreation

Dungeness River Important Groups: Dungeness River Management Team, Jamestown S'Klallam Tribe, Clallam County, North Olympic Peninsula Lead Entity for Salmon, Clallam Conservation District, U.S. Forest Service, Ducks Unlimited, Olympic National Park, Private Riverside Landowners, North Olympic Land Trust,WA Department of Transportation, WDFW, U.S. Fish & Wildlife Service, North Olympic Salmon Coalition, Streamkeepers of Clallam County, Hood Canal Coordinating Council,, Lower Elwha S'Klallam Tribe,

Dungeness River Limiting Factors: Proper functioning of the Dungeness River floodplain has been altered by many human activities including diking, bridge and road constrictions, removal of log jams and large woody debris, forest and agricultural land management, vegetation removal, and water withdrawals (Orsborne and Ralph 1994).

Hatcheries: Hatchery management strategies are designed to be consistent with recovery goals. A broodstock supplementation program is being utilized to bolster Chinook production in the watershed, The program will be continued until habitat restoration can support a naturally sustained population.

Harvest: There is no Chinook fishery in either the Dungeness River or in Dungeness Bay. The biggest harvest concern is with Alaskan and Canadian harvest practices outside the watershed, which are thought to exceed the productivity likely for this watershed. Given the need for this population to achieve low risk for ESU recovery purposes, it is urgent that the US-Canadian Treaty address these harvest concerns.

Implementation Assessment - Summary of Key Findings

North Olympic Peninsula Lead Entity guides Chinook salmon recovery in the Strait of Juan de Fuca, which includes the Elwha River, the Dungeness River, WRIA 19, and various tributaries, nearshore and marine areas associated with those watersheds. The North Olympic Lead Entity's efforts in this area are continually evolving. They have a vast geographic area for which they are planning and implementing recovery actions. They have made good progress advancing their work, adopting new strategies and actions to include items that were not part of the original Recovery Plan, which was incomplete at the time of adoption of the region's Recovery Plan. Their program now includes many new prioritized and integrated capital and non-capital strategies. They have added habitat protection through regulation components, outreach and education components, and notably have attempted to provide a work program that acknowledges all-H's (which is something that is not found uniformly across Puget Sound). In addition to the progress made by the North Olympic Lead Entity in advancing its planning and the development of strategies and actions for the Straits, they have also accomplished some significant actions. We evaluate the Elwha and Dungeness strategies below:[21]

1. The Elwha River Watershed. The removal of the two Elwha Dams is the centerpiece of this Recovery Plan, and the National Park Service has indicated that thanks to stimulus funding supported by the Puget Sound Partnership, they now have the funding needed to begin taking out the dams in late 2011. The watershed has been actively engaged in pre-removal activities that need to be staged in advance of the removal project, including the construction of water treatment plants serving Port Angeles (2009), a new Klallam fish hatchery (2010), and construction of a new greenhouse at Clallam County's Robin Hill Park (operated by Olympic National Park) (2009) to propagate plants for large-scale re-vegetation of the newly exposed floodplain. They are also actively working on their second highest priority, the construction of at least 40 engineered log jams in the Elwha floodplain. In 2009, the Lower Elwha S'Klallam Tribe was awarded $2.5 million in federal stimulus grant funds for portions of this work. There is also a request forthcoming to the SRFB for an additional $500,000 in funding to further fund needed log jams, as well as another phase requesting funding from the 2011 SRFB grant round. From a substantive standpoint, the watershed is working in a very focused and strategic manner to prepare for and complete the removal of the Elwha Dam within its 10-year goals.

2. The Dungeness River Watershed. The highest priority project in the Dungeness River is the purchase and setback of two dikes in the Lower Dungeness River. While there previously was funding available for the purchase of property needed to restore the west side dike, an agreement to proceed could not be reached. Current efforts are directed at the setback of the east side Army Corps dike. Significant progress occurred in 2007 when Puget Sound Acquisition and Restoration dollars were allocated to Clallam County for two key acquisitions needed to set back the east side dike, and additional funds were put towards planning and preliminary dike setback designs. Further progress was made in 2008 when additional SRFB funding was allocated towards the purchase of two significant properties. WDFW and the WA Department of Transportation are currently working to assist with the possibility of additional acquisitions or easements which will further benefit this ecosystem restoration. In addition, the Jamestown S'Klallam Tribe recently secured EPA funding to design the design the channel re-meander. However, no funding has yet to be secured for the construction project to perform the dike setback which has a very preliminary ballpark cost estimated at $9 million.

This project is a tentative addition to the recent shortlist of possible projects proposed for funding by the Puget Sound Nearshore and Estuary Restoration Program. Other positive developments include the completion of piping projects in open irrigation ditches, which should help alleviate irrigation water losses, which contribute to low flow conditions (a significant limiting factor in the Dungeness), and the completion of the Pitship Pocket Estuary restoration by the North Olympic Salmon Coalition which replaced undersized culverts with a bridge and opened up estuary access, and the Dungeness Estuarine Project by the Jamestown S'Klallam Tribe , which restored 10 acres of estuary habitat important for spawning and rearing (and included the planting of 3,500 trees).

[21]The Straits includes WRIA 19, the Lyre-Hoko Watershed, which was not included in the ESU for Puget Sound Chinook. However, a study of juvenile fish use of the WRIA 19 nearshore indicated use by ESA-listed salmonids. The North Olympic Lead Entity includes WRIA 19, and has been involved with the development of a draft WRIA 19 Salmon Recovery Plan which is nearing completion. Although there are 15 capital projects on the 3-year work program (and three of those projects are funded) WRIA 19 will not be evaluated at this time. As noted in other watershed evaluations, NMFS will need to determine the process to formally review and include later-adopted recovery planning goals and strategies such as those under development for WRIA 19 within the regional Puget Sound Chinook Salmon Recovery Plan.

Overall, the implementation of recovery efforts in the Straits has been strategic and focused primarily on high priority projects. A recent example of this is the adoption of a new policy which ranks projects and prevents lower priority projects falling "below the line" from being submitted for funding. They take the implementation of their Recovery Plan seriously and have been monitoring their progress since they participated in the PSP's Salmon Recovery Plan Implementation Monitoring Pilot Project in 2008. Despite their best efforts, the North Olympic Lead Entity self-reports (and we concur), that they are **behind their expected pace of implementation** (although they did not set specific numeric goals at the outset of their implementation efforts). Their efforts are mainly limited by a lack of funds for large-scale restoration projects and an inadequate amount of staff and project sponsor capacity to support their efforts.

As to their near-term implementation plans, the North Olympic Lead Entity has identified the following projects and programs that need to be accomplished:

- **29 Total Capital Projects with a total estimated project cost of $67 million**[22], with funding identified in the amount of $16.349 million, leaving a gap of approximately $50 million:
-
    - In the **Elwha River** watershed: **11 Capital projects (mainly habitat restoration and acquisitions) with a total project cost estimated at $13.844 million.** They have identified $7.294 million in funding sources for 6 of the 11 projects, which are now in progress. However, they will also need to find an additional $5.920 million to complete all of the capital projects on their list and additional money for projects not currently part of the three-year work plan, including the revegetation of the newly exposed Elwha River Floodplain, of which an additional $4 million is needed. There are other projects needed to support salmon recovery in the Elwha which are part of the Puget Sound Partnerships Action Agenda which have also not been submitted to the three-year workplan yet for consideration.

    - In the **Dungeness River** watershed: **18 Capital projects (mainly habitat restoration and acquisitions) with a total project cost estimated at $53.155 million.** They have identified $9.055 million in funding sources for 5 of the 18 projects, which are now in progress. However, they will also need to find an additional $44.060 million to complete all of the capital projects on their list.

- **28 Non-capital programs and projects** (including project development for capital restoration projects, habitat protection programs, outreach and education, watershed coordination, monitoring (habitat and stock)), with a total cost estimated at $8 million. They have secured funding for $758,000 with a gap of approximately $7.242 million.

The funding gap in these watersheds is a significant concern. To put it in perspective, their total funding need is over $57 million, but allocated funding from PSAR for the 2009-2011 biennium is only $2.963 million.

Notably, past efforts have been heavily weighted in favor of capital actions, rather than on funding and implementing non-capital programs. Part of this is a legacy from early lead entity work which was directed to focus primarily on capital actions. Part of it stems from the limited funding available, which tends to favor on the ground, capital actions. Another issue is that many of the non-capital regulatory and protection actions are governed by others. Political support is needed to affect those changes. The North Olympic Lead Entity, however, has taken steps to become more proactive in this regard. For example, earlier this year, the Lead Entity wrote a letter to the County Commissioners opposing locating an outdoor shooting range in the Sadie Creek area, which is part of the SRFB's Intensively Monitored Watershed.

[22] It should be noted that the Elwha Dam removal project, which is the centerpiece of the recovery strategy (estimated to cost $11 million) is not included on the 3-year work program capital projects list. It is believed that it will be federally funded in 2011 as part of the National Park Service budget.

Another area where steps towards further protection was taken came after questions from our Regional Implementation Technical Team Member regarding the lead entity's strategy regarding acquisitions. The Lead Entity took steps in its hiring, outreach and work plan to strengthen these efforts, which helped increase acquisitions the past few years. (note: additional funding is also needed to help move this work forward.)

The group continues making steps to better incorporate non-capital actions. Rather than continuing to have separate capital and non-capital lists of ranked projects, this year the list was integrated so when funding and project decisions are made, it is easy to see both capital and non-capital needs and to reinforce the need for non-capital work. Another step in this direction is the Lead Entity's use of its National Estuary Program funding to partner with the Bureau of Reclamation which is doing channel migration zone work on the Hoko River in WRIA 19. This information is being done to help inform the County's current effort to update of its Shoreline Master Plan. The need for support of the SMP update is part of the lead entity's work plan. Plans are currently being made to hopefully use WDFW technical expertise to assist in laying the groundwork needed to move forward on surveying county culverts, another non-capital, high priority work plan item.

In terms of the need for work on adaptive management, which is called for the NOAA Supplement, the North Olympic Lead Entity reserved a portion of its current PSAR capacity funding for its work on this. The Lead Entity has been awaiting guidance from the Puget Sound Partnership which is working with three other pilot project watersheds, as well as the RITT adaptive management guidance documents. The area also lost its RITT Member earlier this year and was awaiting the appointment of a new one who would also be expected to participate in this work. The Lead Entity did go forward and used existing capacity funds and staffing to begin developing a data base of various monitoring efforts, noting what type of monitoring was happening, who was doing it, where it was occurring, what data was being tracked and where that data is stored. In addition, the Elwha Fish Recovery Plan includes a plan for adaptive management in that watershed. However, that plan is without the funding required to enact the monitoring and other work needed.

Besides having numerous watersheds, two regional recovery organizations (Puget Sound Partnership for Chinook and Hood Canal Coordinating Council for Easter Strait of Juan de Fuca/Hood Canal summer chum) and areas with both listed and non-listed fish, another unique challenge faced by the watershed group working on recovery in the Straits is the significant geography and physical distances that separate them. Although technology advances may help offset some of these issues (such as Skype which is already regularly used at LEG meetings, webcams and cloud computing), the sheer distance that people must travel to meet and work together on recovery efforts in this part of Puget Sound (and to coordinate with the rest of the region) is daunting, and should be acknowledged as a constraint on the pace of implementation. So should the fact that all the local jurisdictions have very limited funding, limited staff, and less economic resources at their disposal those of counterparts working in more urban and better funded areas. Match is also often difficult to come by and project sponsors are stretched extremely thin. Often the person writing salmon recovery grants is also the same person who writes the grant, also does the billing, hires and oversees a crew, does project management, etc. These are also the same key people who are needed to attend lead entity technical team meetings, retreats, project site visits, score work plan project proposal and SRFB grant applications, etc.
It is important to emphasize that complex restoration is occurring essentially on a shoestring, without the same sorts of budgets or staffing which public works departments would routinely have at their disposal to handle the design work and implementation required for such large-scale projects.

What do they need to get back on pace?

Funding. The North Olympic Lead Entity and its stakeholders need support from NMFS and the PSP to create and implement a funding strategy, especially for large, complex restoration projects. It is important to note that core funding for lead entities has remained the same for the entire 12 years of its existence, despite increased responsibilities in terms of implementation, work with regional organizations, development of capital work plans, etc. Lead Entities such as North Olympic were able to begin acquisition, design and implementation of large scale, ecosystem-type restoration thanks to the approval of the Puget Sound Acquisition and Restoration Funds approved by the Washington State Legislature in 2007. Not only did those funds breathe life into restoration projects which had long been on the drawing boards (but without funding for implementation) but the small percentage of those funds that are allocated towards non-capital issues have made a tremendous difference. In North Olympic, that funding has been used to hire a part-time staff person to help further develop future projects, help advance and troubleshoot existing projects, hire a consultant who lead the lead entity policy and technical team through the work needed to integrate and prioritize its work plan, update its strategy, populate the Habitat

Work Schedule, work on finalizing the WRIA 19 Salmon Plan, among others. The funding is also needed to fund core lead entity operations since the lead entity funding does not cover the entire cost of just basic operations (coordinator, office administration, indirect costs, etc). If the PSAR funding were to disappear, the current work would have to be curtailed significantly and staffing would be back to one individual working for less than 40 hours per week.

Another issue related to funding revolves around the need to be able to retain unallocated funds so that when a critical acquisition or needed restoration action becomes a possibility, the lead entity has the funds available to be able to respond to take advantages of these opportunities which may not come around again. Key acquisitions sometimes come up after the death of a property owner or a financial crisis that causes a landowner to sell. We currently lack enough mechanisms to take advantage of these opportunities. For example, property on Kinkade Island became available for purchase recently. Dike removal at this location is a priority in the Dungeness Recovery Plan. But there was no extra funding available when the land went on the market, so it was sold.

Staff Capacity. In addition, they need funding to work on the numerous policies, programs and additional planning and coordination needed to move the entire Recovery Plan forward, especially with regard to enhancing habitat regulatory protections and incentive programs.

Tracking Actions against Plan Goals and Strategies. NMFS and PSP can support the watershed's efforts by helping to create a tracking mechanism that documents (1) changes to the Recovery Plan strategies and actions over time; (2) completion of projects and actions; (3) reporting more specifically on the pace of their work, obstacles and near-term specific need and having the RITT or others serve as a resource to those implementing Recovery Plan actions.

H-Integration. The Straits has requested additional support in working across the H's, especially to work on harvest management and hatchery issues. Advocacy and policy changes by funding agencies and others at the statewide level is needed to ensure that these needed voices are regular and ongoing participants in lead entity Recovery Plan implementation.

Adaptive Management. As indicated previously, this lead entity has set-aside PSAR funds to work on adaptive management (AMM) and is awaiting the RITT guidance document for such. However, they lacking funds to implement Adaptive Management once their AMM Plan is complete**.**

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: ELWHA RIVER WATERSHED

Chinook Salmon Recovery Plan Element ELWHA RIVER	Key Actions to Implement the Strategy Type:	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Est.	Total # Projects In progress	Part of AMM?	Comments
10-YEAR HABITAT STRATEGIES										
PROTECT EXISTING HIGH QUALITY HABITAT WITHIN THE ELWHA										
Restore Access to the Upper Watershed										
	Remove the Elwha and Glines Canyon Dams	National Park Service USGS; NOPLE	Yes	No Dam removal funded by Congress and not a formal part of their 3-year Work program		Yes	Yes	1 of 2? Unclear about Glines Canyon.	Yes	Dam removal has been moved up to start in 2011 instead of 2012 due to Stimulus Funding. Significant pre-removal work is now underway (construction of 2 municipal water treatment plants, diversion channel, outplanting of Chinook, and new log jams). More logjams in middle reaches and tribs are needed.
	Remove Barrier Culverts	ONP, LEKT	YES- 1	YES	NO	YES	YES $500,000	1	NO	This project is funded and under way.
	Mitigate other anthropogenic barriers	Unknown	NO	NO	NO	NO	0	0	NA	This project is not on the three year list.
Protect Existing Functional Habitat										
	Implement the Olympic National Forest General Management Plan;	US FS	NO	NO	NO	NO	0	0	NA	This project is not on the three year list.
	Implement the Elwha Reservoir Plan	unknown	NO	NO	NO	NO	0	0	NA	This project is not on the three year list.
	Implement regulatory protection measures: CAO & other co. regulations, Fish & Forest Plan, DNR HCP, Federal Forest Plan, Shoreline Protection Act, State Hydraulics	Natl. Park Service, Lower Elwha Klallam Tribe, NOPLE,	YES	YES	NO	?	$1.6M For 4 projects $0 funding	0 of 4	N/A	Many of the local government regulations will be updated by virtue of state law deadlines. Federal and State plans need own program approach. NOPLE has 4 projects related to regulatory protection, but no funding to advance them.

Chinook Salmon Recovery Plan Element ELWHA RIVER	Key Actions to Implement the Strategy Type:	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Est.	Total # Projects In progress	Part of AMM?	Comments
	Code, Tribal Land Use regulations	N.Oly Land Trust Clallam County; DNR, DFW US Forest Service								
	D. Acquire habitat and/or encourage private stewardship	NOLT, WDFW, Makah Tribe	Yes-2&3	Yes	NO	NO	$5.5M (no)	0	n/a	(WRIA 19 projs)
	E. Implement land use management plan for Aldwell properties *after dam removal.*	TBD	NO	NO	NO	NO	No funding yet	0	n/a	Donated conservation easement; Need to develop work program to implement this strategy. *TIMING ISSUE – NOT SCHEDULED UNTIL AFTER DAM REMOVAL.*
Restore the floodplain by removing or modifying floodplain structures and restoring habitat										
Modify 7 floodplain structures and include in the NOPLE work plan; Develop and implement re-vegetation plan	Currently 4 projects planned.	LEKT, CC, WDFW, TNC	Yes 1 and 2	Yes	No	Some	2 of 3 projects funded Total est cost = $3.804 M Avail $2.854	2 of 3	NO	They need more funding to complete these projects. *Note: The Elwha river estuary project is not counted in this section, but in the estuary restoration category below. But, it does have floodplain restoration features.
Protect/Restore Estuary and Nearshore Environments										
Implement the Nearshore Strategy (Elwha Nearshore Workshop 2004);	Identify and implement priority projects. - 5 projects planned.	Varies: LEKT, WDNR, COPA, City of Port Angeles,	YES-1,2,&3	YES	NO	some	$5.445 m Total cost; $1.625 m funded;	3 of 5	NO	These projects need additional funding.

Chinook Salmon Recovery Plan Element ELWHA RIVER	Key Actions to Implement the Strategy Type:	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Est.	Total # Projects In progress	Part of AMM?	Comments
		NOLT					gap is $3.82 m			
Conserve Water and Protect Instream Flows	**Implement the WRIA 18 Watershed Plan**:									
	Conduct Instream Flow IM post-dam removal.	TBD	NO	NO	NO	NO	No funding yet	0	n/a	*TIMING ISSUE – NOT SCHEDULED UNTIL AFTER DAM REMOVAL.*
	Set minimum instream flow for the Elwha and its tributaries;	Unknown	NO	NO	YES	NO	0	0	N/A	Not on the three year work program list. This maybe a timing issue?
	Enforce water use regulations.	Unknown	NO	NO	YES	NO	0	0	N/A	Not on the three year work program list. This maybe a timing issue?
Place LWD into River	Identify and implement priority projects through the NOPLE work plan. Some logjams already constructed in lower river but more needed. 1 project – 20 ELJs	LEKT	Yes-1	Yes	No	yes	$1million cost; Funding is being sought now	1 of 1	N/A	Proposal for approx 10 ELJs is submitted for 2010 SRFB round. Request for another phase to construct 10 more logjams is expected to come in futurefunding round.
HARVEST STRATEGIES										
Maintain harvest rates for Elwha Chinook in a manner consistent with recovery.	**Regulate US and Canadian fisheries to achieve goals to increase natural productivity:**									
	(1) Evaluate natural productivity of Elwha River and set harvest levels accordingly;	NMFS, Co-Managers								
	(2) Close Freshwater Bay and Elwha River Tribal and Non-Tribal fisheries in the Elwha River for a period of 5-years following dam removal.	Unknown								
	(3) Set harvest goals through annual management forums. Ensure harvest limits in US/CAN Treaty are consistent with recovery	NMFS, US, Co-Managers								

Chinook Salmon Recovery Plan Element ELWHA RIVER	Key Actions to Implement the Strategy Type:	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Est.	Total # Projects In progress	Part of AMM?	Comments
	goals for Elwha.									
HATCHERY STRATEGIES										
Maintain Elwha Chinook populations prior to dam removal	Implement the WDFW Hatchery Genetic Management Plan (HGMP) for Elwha Chinook. One project on the list.	**LEKT**	**YES-2**	**YES**	**NO**	**NO**	**$450K Total: no funding**	**0 of 1**	**NO**	**Elwha River Native Steelhead Brood Development Project ready to implement needs funding**
	Implement WDFW/Tribal Fish disease protocols.									
	Implement the Elwha Fish Restoration Plan									
	Implement the WDFW HGMP for Elwha Chinook									
	Implement the Elwha Fish Restoration Plan									
Restore Chinook to the upper Elwha Watershed following dam removal.	Implement the Elwha Fish Restoration Plan									
HYDRO STRATEGIES										
Restore access to upper watershed	Remove Elwha and Glines Canyon Dams.	**See Above.**								
Restore natural processes	Implement the Elwha Restoration Act.	See above.								
Reduce disease in lower watershed.										
Restore natural temperatures										
Restore habitat										
ADAPTIVE MANAGEMENT AND	3 monitoring projects identified; one project adapted management	WDFW, JSKT, CC	Yes – 2 and 3	Yes	Yes	No	Total cost = $516K	0 of 4	YES	These projects need funding. Also need funding to support continued development and

Chinook Salmon Recovery Plan Element ELWHA RIVER	Key Actions to Implement the Strategy Type:	Action Lead	Prioritized ?	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Est.	Total # Projects In progress	Part of AMM?	Comments
MONITORING	plan for the Elwha Watershed	NOPLE, COPA, COS, Streamkeepers					$375K for plan			implementation of their adaptive management plan.

CHINOOK RECOVERY PLAN IMPLEMENTATION ASSESSMENT: DUNGENESS RIVER

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
HABITAT STRATEGIES										
1. Restore the Lower River Floodplain and Delta (RM 0-2.6)										
Army Corps of Engineers and Beebe Dike setback	2 projects underway for total of 1.8 miles; dike setbacks and river re-meandering; ELJs	CC, ACOE, JSKT	Yes	Yes	No	Yes	Yes $7.5m $2.175m	2 of 2	No	These two projects are underway and funded.
2. Protect Existing Functional Habitat										
2A. Protect and Restore the Riparian Corridor to Hwy 101 through acquisition or easements: (RM 2.6-11.3)										
River's End Road buyout Properties for Corps Dike setback	These projects represent 4 miles and 160 acres of easements and land purchases from RM 0-12.	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	No $9 million	1 project but numerous parcels	No	This set of projects needs funding.
Conserve & protect west side floodplain	See above	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Preserve & protect Hurd Creek area	See above	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Conserve & protecterty property located at River	See above	Jamestown	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Mile_____		S'Klallam Tribe, NOLT, DFW								
Purchase of land at Dungeness Meadows	See above	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Purchase or easements of parcels specified in "Recommended Land Protection Strategies for the Dungeness Riparian Area" (2003)	See above	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Purchase of land in Kinkade Island area	See above.	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Properties purchased for removal of Upper Haller Dike	See above	Jamestown S'Klallam Tribe, NOLT, DFW	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.
Properties purchased for removal of Lower Haller Dike	See above.	Jamestown S'Klallam Tribe, NOLT,	Yes-1	Yes	No	No	See above	See above	No	This set of projects needs funding.

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
		DFW								
2B. Protect Existing Habitat using Land Use Regulatory Tools:										
2.B.1 Ensure Existing regulations are applied and enforced										
Create stable-funded incentive programs	Increase NOPLE-wide recovery capacity and support	CC and CCD	Yes-1	Yes	No	No	*$300,000 (0.5 FTE at $60,000 for 10 years)*	0 of 1	No	This protection program is not moving forward and needs funding.
2.B.2 Regulations restrict land use activity from impacting salmonid VSP parameters										
All regulatory agencies within the watershed should use regulation and policy to restrict land use activities that negatively impact salmon:	See specific actions below	See below	Yes	Yes	Yes	Some	*See below*	Multiple	No	Multiple actions below.
2.B.3 Clallam County Regulatory Work:										
Review and update, as necessary, stormwater management program: • Stormwater management rules • Clearing and grading • Monitoring • Education • Compliance • Watershed planning	Update Clallam County Stormwater management plan	Clallam County with support from NOPLE and PSP staff	Yes	**No**	No	Yes	*Yes EPA funds*	1	n/a	The County is leading this action, not NOPLE, but they are a participant.
Comprehensive Flood Hazard Management Plan	Update the CFHM Plan	Clallam County	Yes	**No Project is now completed.**	No	N/A	*N/A*	Complete	n/a	Action is complete.
Update Flood Insurance Rate Maps and channel meander hazard maps	This project is not on the 3-year work program	Clallam County	No	No	No	No	*No. $60,000 for FIRMS; $2-3,000 for maps*	0	n/a	There is no funding in the 3-year work program for these programs; (Is this waiting for FEMA?)Note: CMZ done for Dungeness and included in floodplain management report. Expect

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
										CMZ incorporation in new Shoreline Master Plan Update.
Update Clallam County Shoreline Master Program pursuant to Chapter 90.58 RCW and Chapter 173-26 WAC.	Update SMP	Clallam County	Yes	Yes	Yes	Yes	*$200,000 (2 FTEs for 2 years); $50,000 – 100,000 to study high-priority shoreline segments*	1	n/a	The County is leading this action. Clallam County has a DOE grant for this work. Other jurisdictions also updating includeSequim, Port Angeles and Forks)
Review and update Critical Areas Code, Ch. 27.12 CCC consistent with GMA.	Adopt a CAO	Clallam County	Yes	No. Project now completed.	No	N/A	*N/A*	Complete	n/a	Action is complete by Clallam County, Port Angeles; unclear about other agencies. Sequim not done.
Update of Comprehensive Plan to incorporate salmonid recovery planning efforts	Update GMA Plan	Clallam County	Yes	No. Project is now complete.	No	n/a	*n/a*	Complete	n/a	Clallam County is complete. Not clear about others.
Increase compliance of Clallam County ordinances and codes	Improve code compliance.	Clallam County	Yes	Yes	Yes	Yes	*$1,200,000 (2 FTE's at $60,000 each for 10 years)*	1	n/a	Unclear as to whether this project is underway.
Adopt Class 4 Forest Practices Ordinance	This project is not on the 3-year work program	Clallam County	No	No?	No	No		0	n/a	There is no funding in the 3-year work program for these programs; NOPLE is not leading this action.
Adopt Septic System	This project is not	Clallam	Yes	No	No	No	*Unknown*	1	n/a	On-site Septic System

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Maintenance Standards	on the 3-year work program	County								Advisory Group started in 2008; funding is struggle.
Monitoring and reporting programs for regulated activities.	Track and report on the granting of variances, reasonable use exceptions and exemptions from land use regulations. Show on a map of the Dungeness watershed. Review for consistency with ESA recovery goals.	NOPLE	**Yes**	**No?**	**Yes**	**?**	*$315,000*	?	n/a	Proposed on 3-Year Workplan
2.B.4 City of Sequim Regulatory Work										
Update of Comprehensive Plan, which includes update of Critical Areas Code	This project is not on the 3-year work program	City of Sequim	Yes	No	yes	No	Not specified.	1?	n/a	Dependent on state funding. There is no funding in the 3-year work program for these programs
Update Shoreline Master Plan by 2011.	This project is not on the 3-year work program	City of Sequim	No	No	No	No	Not specified.	0	n/a	Need DOE funding. There is no funding in the 3-year work program for these programs
2.B.5 Inter-Jurisdictional Regulatory and Planning Work										
WRIA18East Watershed Plan Implementation	This work is ongoing.	Dungeness River Management Team	Yes – 1	Yes	No	Yes, but need more	~$5 million: projects not listed elsewhere ~$1.5 million: operations	1	No	Staff capacity to move projects forward is largely dependent on additional funding. The large geography proves to be a challenge in coordinating with people on recovery.
Marine Resources Committee	Not on the 3-year work program list	MRC NW	No	No	No	No	~$500,000: 10	**0**	**No**	Limited collaboration between NOPLE and MRC

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
		Straits Commission Clallam County					years @ $50,000 base funding/year			at this time; potential is there to do more.
Support continued work of North Olympic Peninsula Lead Entity	1 action on the list	NOPLE WDFW State RCO	Yes	Yes	No	Yes	$100 million total: $ 10 million annual cost	**1**	**No**	In progress.
- Implement Dungeness Bay Cleanup Plan	No actions of the list.	Clean Water District	No	No	No	No	$700,000 over 10 years	**0**	**No**	No one appears to be advancing this Plan.
– Implementation of a Comprehensive Stormwater Management Plan	No actions of the list.	Clean Water District	No	No	No	No	Utility fee supported	**0**	**No**	No one appears to be advancing this Plan.
2.B.6 Regulatory Work Required by Other Agencies										
Update Salmon Harvest Plans		Co-Managers, NOAA	?				$1,.2 m for 2 FTE at $60,000 each for 10 years			
Dungeness Chinook and Other Salmonids Monitoring Project										
Hydraulic Permits (HPA) increased compliance and additional environmental review	No actions of the list.	WDFW, Others?	No	No	No	No	$350,000 (0.5 FTE $35,000 annually)	0	No	No one appears to be advancing this regulatory protection project.
Property Disclosure Form	No actions of the list.	Unknown	No	No	No	No	Unknown	0	No	No one appears to be advancing this regulatory protection project.
3. Floodplain Restoration / Constriction Abatement (RM 2.6-11.3)										
Dike removal, alteration, or setbacks										
End maintenance of Rivers	See Lower	CC,	Yes – 1	Yes	No	Yes	Yes	2 of 2	N/a	These high priority projects

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
End dike; remove buildings and infrastructure	Dungeness dikes Setback projects Phase II and III	ACOE, JSKT					$7.5 m – Phase II and $2.175 m for Phase III			will restore 1.8 miles of the Dungeness river. They are underway.
Lower portion of Dungeness Meadows dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Dike removal at Kinkade Island	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Upper Haller Dike Lower Haller Dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Robinson Dike and armoring removal or setback on scattered parcels	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Railroad Bridge dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Planning/Design analysis for dike setbacks	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
										abandoned or are complete. Check with NOPLE.
Corps Dike setback upstream of Schoolhouse Bridge	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Setback of West Side dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Setback Ward Road	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Constriction Abatement:										
-Lengthen Schoolhouse Bridge -Lengthen Woodcock Rd. Bridge -Alter present Railroad Bridge-Lengthen 101 Bridge -Relocate hatchery infrastructure from floodplain	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Irrigation Infrastructure Changes:										
Eliminate of Independent outtake; -Modify other outtakes from HWY 101 to Power Lines (RM 6.4-8.8); -Modify outtake facilities and screens from Power Lines to	Dungeness River Instream Flow Improvement project	Dungeness Agricultureal Water Users Associa	Yes – 1	Yes	Yes	Yes	No – $4.680 m total cost	0	No	This project will save 6.7 to 7.7 cfs in the river. It needs funding to advance.

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Canyon Creek (RM 8.8-10.8); -Implement irrigation tailwater treatment in nearshore		tion; Clallam Conservation District; DIG								
Re-vegetate with native plants:										
Restore Estuarine delta	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Restore lower river floodplain and setback West Side Dungeness kike.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Restore tributary systems (Matriotti Creek) Re-vegetate after buyout and removal of Upper Haller Dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Re-vegetate after buyout and removal of Lower Haller Dike	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Reforestation of riparian parcels along Dungeness River below Canyon Creek Riparian	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Restore small estuaries along creek mouths including	This project is not on the 3-year	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Cooper, Meadowbrook, and Cassalery Creeks.	work program									advancing, have been abandoned or are complete. Check with NOPLE.
4. Water Conservation/ In-stream Flow Protection										
-*Update and implement Comprehensive Irrigation Water Conservation Plan*: -Implement projects such as piping and lining, re-regulating reservoir, water rights and leases and trusts; -Reduce conveyance through rivers and creeks; -Implement other domestic, municipal water conservation projects identified in WRIA 18 Watershed Plan.	2 projects on the list: McDonald Creek Diversion Dam; and Cassalery Creek projects	JSKT, AID, WDFW, CCD SWD	Yes – 3	Yes	Yes	No	$800k No funding	0 of 2	No	At time plan was adopted, the CIDMP was under negotiations; but projects were planned regardless of CIDMP status. It is not clear whether these two projects are within the Plan.
Instream Flow Rule: -Develop Rule -Develop aquifer storage & recovery -Water conservation for all sectors; -Develop mitigation and alternative water supplies; -Enforce water rights; -Implement metering -Implement trust water rights (water masters, etc)	No projects on the 3-year work program list.	WDOE Dungeness River Management Team Clallam County Clallam CD NRCS	No	No	Yes	No	$2,120,000	?	No	These projects are not on the 3-year work program. DOE and others advancing some of them separately.
Implementation of Ecology's water acquisition and trust water rights programs	No projects on the 3-year work program.	DOE	No	No	Yes	No	$2,120,000	?	No	These projects are not on the 3-year work program. DOE may be advancing them separately, but not clear.
5. Restore Functional Riparian and Riverine Habitat										
Buffer Restoration	Restore riparian corridor in Matriotti Creek									

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Native cover should be re-established within 150 ft for the entire lower river (RM 0.0 to RM 10.5) by 2010. (See various projects in Land Protection Strategies for Dungeness, 2003)	Dungeness Riparian Reforestation project	CCD, JSKT, CC, NWB	Yes – 2	Yes	No	No	No $150,000 – conceptu al stage	1 of 1 Planning only	No	This project is just getting started. It will restore 15 acres of vegetation. This project alone is not adequate to meet their stated 2010 goal.
Provide technical assistance and cost-share program information to Dungeness River landowners.	3 actions on the list: -NOPLE area-wide outreach program; -Clallam County Salmonid Outreach Planner; and -Lower Morse Creek Restoration Public Outreach	NOPLE and WDFW Clallam County	Yes – 3 and 2	Yes	No	No	$485,000 Total projects No funding Concept ual stage	0 of 3	No	These project needs funding to advance.
Provide tax incentives to parcels that have adequate vegetation.	This project is not on the 3-year work program	Unknow n	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Channel Meander Zone and 100 year floodplain										
Revise COA to require buffer setbacks beginning at the edge of the CMZ.	This project is not on the 3-year work program	Unknow n	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Utilize the "natural" floodplain boundaries in the Bureau of Reclamation Study (Bountry et al., 2002), in setting the 100-year floodplain.	This project is not on the 3-year work program	Unknow n	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Use data from BOR study and LIDAR flights to update FEMA's NFIP Flood Insurance Maps.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	These projects are not on the list. They are either not advancing, have been abandoned or are complete. Check with NOPLE.
Enforcement										
Change codes to require that development should be located outside of SMP jurisdictional areas (200 feet from Ordinary High Water Mark)	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Change CAO to require that all development along the Dungeness River corridor should be considered "major development."	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Riparian Buffer Requirements										
Review buffer widths in light of salmonid recovery strategies and adopt a 200' minimum buffer width for Class I Wildlife Habitat Conservation Areas.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
On the Dungeness, the development setback should be increased to 150 ft measured from the channel meander hazard zone.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Education and Incentives										
Provide technical assistance to riverside landowners and encourage the widest buffers possible given lot dimensions.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
6. Large Woody Debris Placement:	Dungeness River Engineered Log	Jamestown	Yes – 1	Yes	No	Yes	No $11	0	Na	This set of high priority projects needs funding. It

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
-15 Engineered Log Jams (ELJs) in lower river floodplain -ELJ project between 101 and Old Olympic Highway -ELJs from Old Olympic HWY. to Woodcock Rd. -ELJs to Dungeness Meadows dike -ELJs from Powerlines to Canyon Creek	Jams (RM 2.7 to 18.8 and RM 0 to 1.0)	S'Klallam Tribe					million total project cost; $0 funding			will place LWD into 20 miles of river.
7. Nearshore Habitat Protection and Restoration										
Perform high priority restoration, protection and assessment projects along the Strait of Juan de Fuca.	5 projects on the list: Dungeness Drift Cell Protection; -N. Sequim Bay Drift Cell Protection; -Washington Harbor Drift Cell Protection -Wash. Harbor Habitat Protection project; and - Wash. Harbor Tidal Flow Restoration Project	NOSC and JSKT; NOLT, COS	Yes-1	Yes	No	Some	1 of 5 is funded $10 million total projects $950 avail. Gap is $9 million	1 of 5	No	These are high priority projects and they need funding to advance.
Protect eelgrass beds in nearshore habitat	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Restoration of salt marsh habitat at Graysmarsh/ Gierin Creek	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Riparian restoration at small estuaries along creek mouths including Cooper, Meadowbrook, and Cassalery	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Implement the Dungeness	This project is not	Unknow	No	No	No	No	No	0	n/a	NOPLE is not leading this

Chinook Salmon Recovery Plan Element DUNGENESS RIVER	Actions to Implement Key Strategies	Action Lead	Prioritized	Part of 3-Year Work Program	Filling Gaps called out in NOAA Suppl.	Staff	Cost Estimate	Total # Projects In progress	AMM	COMMENTS
Bay and Cleanup Plan (Clean Water Work Group 2002)	on the 3-year work program	n								action.
8. Barrier Removal										
Remove Canyon Creek Dam	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
9. Stock Recovery/ Rehabilitation										
See Hatchery Management Plan (HGMP)		Co-Managers NMFS								
10. Sediment Management/ Source Control										
Decommission and stabilize selected forest roads in the Upper Dungeness.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Improve water quality and salmonid spawning and rearing habitat (turbidity) by remediating Gold Creek Slide.	This project is not on the 3-year work program	Unknown	No	No	No	No	No	0	n/a	NOPLE is not leading this action.
Complete the WRIA 19 Salmon Recovery Plan Chapter (NEW)	Project is on the list.	North Olympic LE & LEKT	Yes – 2	Yes	Yes	Yes	Yes - $50,000	1	No	This thorough plan is almost completed. It includes goals, strategies & needed actions.